FINAL

ENVIRONMENTAL ASSESSMENT OF PROPOSED MILITARY CONSTRUCTION AND OPERATION AT KIRTLAND AIR FORCE BASE

March 2005

Prepared for
Air Education and Training Command
Air Force Materiel Command

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ACRONYMS AND ABBREVIATIONS

ABW	Air Base Wing
ACCF	Aircraft Corrosion Control Facility
ADT	Average Daily Traffic
AEHD	Albuquerque Environmental Health Department
AETC	Air Education and Training Command
AFB	Air Force Base
AFMC	Air Force Materiel Command
AFSOC	Air Force Special Operations Command
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
DoD	Department of Defense
EA	Environmental Assessment
EIR	Economic Impact Region
EO	Executive Order
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
°F	degrees Fahrenheit
FSF	Flight Simulator Facility
FY	Fiscal Year
HAPs	Hazardous Air Pollutants
IRP	Installation Restoration Program
LOS	Level of Service
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMAAQS	New Mexico Ambient Air Quality Standards
NMDG&F	New Mexico Department of Game and Fish
NMEMNRD	New Mexico Energy, Minerals, and Natural Resources Department
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOS	Special Operations Squadron
SOW	Special Operations Wing
SPCC	Spill Prevention, Control, and Countermeasures
tpy	tons per year
USACE	US Army Corps of Engineers
USAF	US Air Force
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
V/C	Volume-to-Capacity
VOC	Volatile Organic Compound

FINAL
FINDING OF NO SIGNIFICANT IMPACT
FOR THE
CONSTRUCTION AND OPERATION
OF AN HC-130P FLIGHT SIMULATOR FACILITY
AND AN
AIRCRAFT CORROSION CONTROL FACILITY
AT KIRTLAND AIR FORCE BASE,
ALBUQUERQUE, NEW MEXICO

Air Force Special Operations Command (AFSOC) and the 58th Special Operations Wing (58 SOW), a unit of Air Education and Training Command, prepared the attached Environmental Assessment (EA) to assess the potential environmental consequences of Proposed Actions at Kirtland Air Force Base (AFB). The actions assessed in this document consist of the construction and operation of an HC-130P Flight Simulator Facility (FSF) and an Aircraft Corrosion Control Facility (ACCF).

PURPOSE AND NEED FOR THE PROPOSED ACTIONS

HC-130P Flight Simulator Facility and the Aircraft Corrosion Control Facility

If constructed, the FSF would allow realistic HC-130P training at Kirtland AFB and ensure that the 58 SOW meets Graduate Program requirements. Currently, students must share and cross train on an MC-130P Combat Weapon System Trainer. The current situation is inadequate from a realistic training standpoint due to the difference in equipment and the limited throughput of students through the facility.

Construction of the ACCF would allow current painting operations that are being conducted outside to be done indoors. Spot painting indoors would allow painting operations of aircraft to occur year round (currently it is limited by weather conditions) thus increasing the lifespan of support equipment by providing regular corrosion control.

DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES

Construction and Operation of the HC-130P Flight Simulator Facility

The FSF would be a 13,500 square foot, two-story building with a reinforced concrete foundation and floor slabs, masonry walls, and standing seam metal roof. The building would include a 50-foot by 54-foot bay, briefing room, facility support, mass briefing area, computer room, communications, landscaping and all supporting utilities. Approximately one acre of ground would be paved for parking lots and traffic flow. Operations at the HC-130P FSF would be similar to those currently being conducted at the existing MC-130P FSF.

Construction and Operation of the Aircraft Corrosion Control Facility

The proposed facility would be a 22,219 square foot building that would include an aircraft paint bay, offices, facility support, plastic media blast area, receiving prep bay, fiberglass room, other shop rooms, mechanical rooms, communications, and all supporting utilities. Operation of the ACCF would replace current painting operations that are being conducted in an open environment.

No-Action Alternative

Under this alternative, AFSOC and the 58 SOW would not construct the HC-130P FSF or the ACCF. Students would continue to receive inadequate flight training and minor outdoor painting of aircraft would continue when weather permits.

SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS

Proposed Actions

Minor long-term negative impacts to hazardous materials, hazardous wastes, and solid wastes would occur from operation of the ACCF. Beneficial, but minor, long-term impacts are expected to occur to local air quality and socioeconomics. Implementation of the Proposed Actions could result in minor short-term negative impacts to air quality, noise, soils, and transportation and utilities from construction activities. No impacts are anticipated to occur to human health and safety, water resources, biological resources, current land uses, floodplains, wildlife, wetlands, minority and low-income populations, or cultural resources from the Proposed Actions. Only those resources that would experience either minor negative long-term impacts or minor beneficial long-term impacts are discussed below.

Air Quality. Implementation of the Proposed Actions could result in short-term negative impacts to air quality from construction activities. Beneficial, but minor long-term impacts are expected to occur to local air quality from the use of particulate air filters in the paint booths of the ACCF.

Socioeconomics. Socioeconomic impacts from implementation of the Proposed Actions would be beneficial, but minor, due to a slight increase of new jobs in the Albuquerque area created by these facilities.

Hazardous Material, Hazardous Wastes, and Solid Wastes. A slight increase in used paint filters would result from the operation of the ACCF, but the increase would not be significant.

No-Action Alternative. Under this alternative, AFSOC and the 58 SOW would not build the HC-130P FSF or the ACCF. No change to current conditions would occur from the No-Action Alternative.

CONCLUSION

After careful review of the EA of these Proposed Actions, I have concluded that the Proposed Actions would not have a significant impact on the quality of the human or natural environment. Therefore, issuance of a Finding of No Significant Impact is warranted, and an Environmental Impact Statement is not required. This analysis fulfills the requirements of the National Environmental Policy Act and the implementing regulations promulgated by the Council on Environmental Quality.

Accepted By: _____ Date: JUN 30 2005

HENRY L. ANDREWS, JR., Colonel, USAF
Commander
Kirtland Air Force Base, NM

FINAL
ENVIRONMENTAL ASSESSMENT
FOR THE
CONSTRUCTION AND OPERATION
OF AN HC-130P FLIGHT SIMULATOR FACILITY
AND AN
AIRCRAFT CORROSION CONTROL FACILITY
AT KIRTLAND AIR FORCE BASE,
ALBUQUERQUE, NEW MEXICO

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SECTION 1
PURPOSE AND NEED FOR THE PROPOSED ACTIONS

This Environmental Assessment (EA) evaluates the potential impacts on environmental and human resources associated with the proposed construction and operation of an HC-130P Flight Simulator Facility (FSF) and an Aircraft Corrosion Control Facility (ACCF) at Kirtland Air Force Base (AFB) in Albuquerque, New Mexico. Air Force Special Operations Command (AFSOC) and the 58th Special Operations Wing (58 SOW), a unit of Air Education and Training Command (AETC), are the proponents of these actions. This EA also evaluates any reasonable alternatives to the Proposed Actions, including the No-Action Alternative. This document is part of the Environmental Impact Analysis Process set forth in Title 23, Code of Federal Regulations (CFR), Part 989, which incorporates Air Force Regulation 32-7061 and implements the National Environmental Policy Act (NEPA) and the regulations implementing NEPA promulgated by the President's Council on Environmental Quality as Title 40 of the CFR Parts 1500-1508. In addition, Section 1.6.8 of Executive Order 12372, *Intergovernmental Review of Federal Programs*, directs federal agencies to consult with and solicit comments from state and local government officials whose jurisdictions would be affected by federal actions (Appendix A). In addition, NEPA procedures and US Air Force policy are intended to ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. This EA describing the potential impacts of these Proposed Actions will be made available to the public for 30 days prior to the decision on whether to proceed with the actions.

The mission of AFSOC is delivering special operations combat power anytime, anywhere. The command is committed to continual improvement to provide Air Force Special Operations Forces for worldwide deployment and assignment to regional unified commands to accomplish the following special operations activities: unconventional warfare, counter proliferation, direct action, psychological operations, special reconnaissance, civil affairs, combating terrorism, foreign internal defense, and information operations.

The mission of the 58 SOW is "to train mission-ready special operations and rescue aircrews for the world's best air force." Once trained, students go on to serve with AFSOC, Air Mobility Command, Air Combat Command, Pacific Air Forces, United States Air Forces in Europe, Air Force Space Command, and Air Force Reserve and Air National Guard components. The 58 SOW maintains three operational squadrons at Kirtland AFB: the 512th Special Operations Squadron (512 SOS), which flies UH-1N and HH-60G helicopters; the 551 SOS, which flies H-53 helicopters; and the 550 SOS, which flies MC-130H and H/MC-130P fixed-wing aircraft. The 58 SOW conducts advanced training for aircrews who are tasked with special operations and rescue missions. The unit also provides personnel and aircraft needed to respond to crises around the world and assist civilian authorities in regional rescues.

1.1 BACKGROUND

Kirtland AFB is located just southeast of Albuquerque, New Mexico in Bernalillo County at the foot of the Manzanita Mountains (Figure 1-1). Kirtland AFB encompasses over 52,000 acres of East Mesa with elevations ranging from 5,200 feet to almost 8,000 feet above mean sea level (US Geological Survey 1990 a, b, c; 1991 a, b, c). The base was originally established in the late 1930s as a training base for the Army Air Corps, and grew rapidly with US involvement in World War II. After the war, Kirtland AFB shifted from a training facility to a test and evaluation facility for weapons delivery. Kirtland AFB and its adjoining neighbor to the east, Sandia Army Base, were combined in 1971. The two divisions of the base are still referred to as Kirtland West and Kirtland East, respectively.

Kirtland AFB is now operated by the 377th Air Base Wing (377 ABW) of Air Force Materiel Command (AFMC). The 377 ABW's prime mission, as the host unit at Kirtland AFB, is munitions storage, readiness, and base operating support for approximately 76 federal government and 384 private sector tenants and associate units (Kirtland AFB 2004).

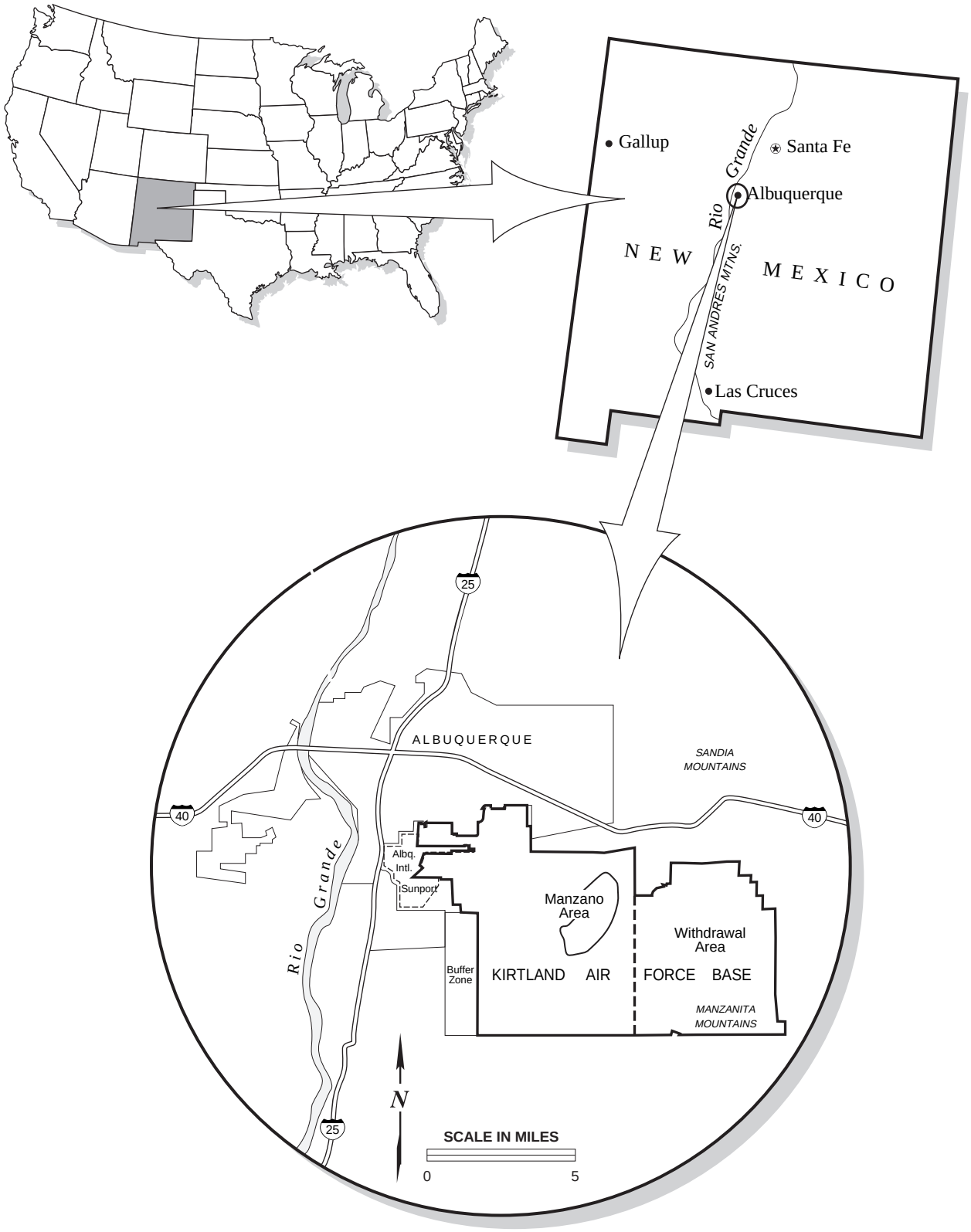
1.2 PURPOSE AND NEED FOR THE PROPOSED ACTIONS

AFSOC and the 58 SOW are proposing the construction of two separate facilities:

- an HC-130P FSF to accommodate training of Combat Search and Rescue aircrew, and
- an ACCF to support mission requirements and maintain flying readiness.

1.2.1 Construction of an HC-130P Flight Simulator Facility

This Proposed Action would increase training efficiency, capabilities and the total number of students that can be trained per year. Currently, the trainees for the HC-130P are using an existing MC-130P Combat Shadow Weapon System Trainer. The equipment configurations of the MC and the HC-130 variants are dissimilar and require students to establish new equipment system crosschecks and learn operating procedures that are not correct for the HC-130P. Trainees for both the MC-130 and the HC-130P are using the current simulator and training sessions are limited to a total of 32 HC-130P students per year. Under the projected training requirements established by the Graduate Program Requirements Document, the HC-130P aircrew training program should have 37 students per year currently, increasing to 41 per year in Fiscal Year 2005. In addition, the 58 SOW cannot meet instructor/aircraft commander upgrade training requirements requested by operational units. The current situation is inadequate from a realistic training standpoint due to the difference in equipment. In addition, the student throughput at the existing facility is not sufficient to meet Graduate Program requirements. If the HC-130P FSF were not constructed, the unit would continue to struggle to meet training quotas and fail to accurately provide a realistic training environment for a high demand mission area.



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EA

Kirtland Air Force Base Location

FIGURE

1-1

1.2.2 Construction of an Aircraft Corrosion Control Facility

This Proposed Action would support mission requirements. A sheltered area to paint aircraft/support equipment for corrosion prevention purposes is necessary to maintain readiness of unit aircraft. Currently, health, safety and other mission requirements significantly limit painting in the existing hangars. The local climate, with its dusty and windy conditions, makes outdoor application unsuitable approximately 80 percent of the time. Aircraft in need of painting either need to wait until outdoor painting conditions are conducive, or aircraft would need to be sent off base for painting. This results in an increased cost for painting while making these aircraft unavailable for mission tasking. Construction of the ACCF would allow current spot painting operations to occur all year, thus increasing the lifespan of support equipment by providing regular corrosion control and reducing the need to transport aircraft off base for painting during unsuitable weather conditions. Being able to paint during the entire year would also spread the work load throughout the year and reduce the current work influx and manning issues resulting from the present "paint season." The unit would be self-sustaining and mission readiness would continue.

1.3 Decision to Be Made and Decision-Maker

The installation commander will make a decision regarding the best alternative to support AETC, AFSOC, AFMC, the 58 SOW and Kirtland AFB, as well as whether or not to sign the Finding of No Significant Impact.

1.4 Alternative Identification

For the ACCF, alternative locations needed to be large enough to house a C-130 for spot painting and be close enough to the airport apron that aircraft can be easily transported to the facility. The proposed location for the ACCF is the only one that meets these criteria. For the HC-130P FSF, the facility had to be near the current student training areas to minimize transit time. Existing buildings in the area that could be converted to support the HC-130P FSF are currently supporting other mission requirements. Therefore, building a new facility is the only available option and the area chosen meets the location requirements.

SECTION 2
DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES

Air Force Special Operations Command and the 58th Special Operations Wing (58 SOW) of Air Education and Training Command propose to construct and operate two separate facilities at Kirtland Air Force Base (AFB) in Albuquerque, New Mexico: an HC-130P Flight Simulator Facility (FSF); and an Aircraft Corrosion Control Facility (ACCF). The following section describes the Proposed Actions and alternatives to these actions.

2.1 DESCRIPTION OF THE PROPOSED ACTIONS

2.1.1 Construction and Operation of the HC-130P Flight Simulator Facility

The proposed location for the new HC-130P FSF would be south of Biggs Ave. and west of Eileen St. (Figure 2-1). The FSF would be a 13,500 square foot, two-story building with a reinforced concrete foundation and floor slabs, masonry walls, and standing seam metal roof. The building would include a 50-foot by 54-foot bay, briefing room, facility support, mass briefing area, computer room, communications, landscaping and all supporting utilities. Approximately one acre of vacant land would be paved for parking and traffic flow. Operations at the HC-130P FSF would be similar to those currently conducted at the existing MC-130P FSF (classes, flight simulator instruction, and flight simulator maintenance). Twenty-five new civilian jobs would be created to operate the facility.

2.1.2 Construction and Operation of the Aircraft Corrosion Control Facility

The proposed location for the new ACCF would be across the street from Building #949, west of Doris St. (Figure 2-1). The proposed facility would be a 22,200 square foot building that would include an aircraft paint bay, offices, facility support, plastic media blast area, receiving prep bay, fiberglass room, and other shop rooms, mechanical rooms, communications, and all supporting utilities. Particulate filters (paint filters) would be installed in the paint bays and an oil/water separator would be constructed to process effluent wastewater. The fenced area by the taxiway would have to be altered to allow aircraft access to the ACCF. The existing parking area for Building #980 also would be used as parking for the ACCF. Operation of the ACCF would replace current painting operations that are being conducted in an open environment. Painting operations consist of washing down the aircraft; sanding, scuffing and bead blasting worn or corroded portions of aircraft and aircraft parts; using tack cloth on the prepped surface; and finally applying the primer, top coat and decals. The current two-part base and catalyst system would be the painting system employed. Approximately, 20 aircraft a year would undergo spot painting. No additional painting would be done above current levels. Up to ten civilian workers are proposed to operate the facility. They would replace military personnel who previously conducted painting operations on 58 SOW aircraft.

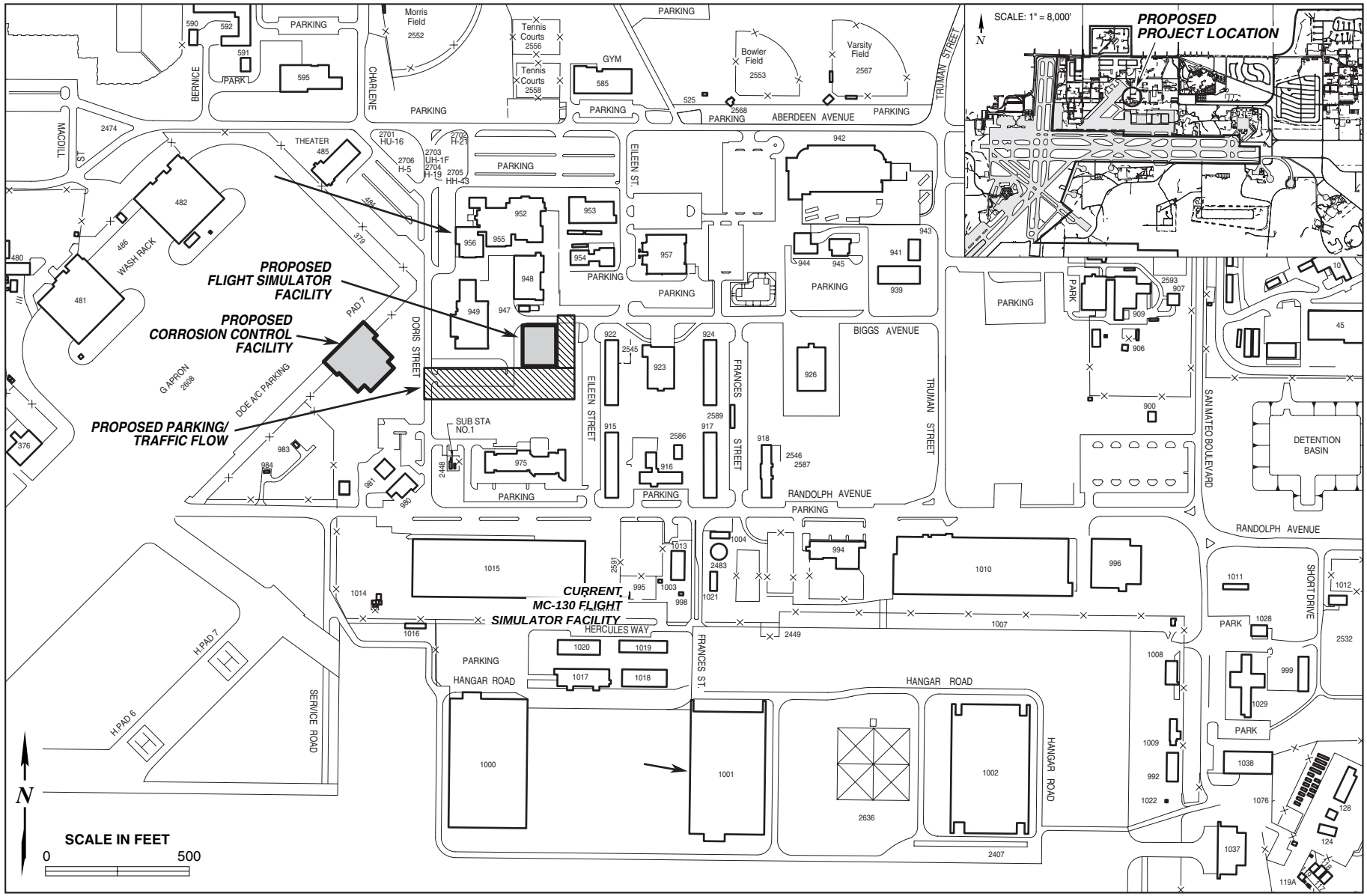

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FIGURE

EA

Location of Proposed Flight Simulator Facility and New Corrosion Control Facility
Kirtland Air Force Base

2-1

2.2 INFORMATION COMMON TO BOTH PROJECTS

2.2.1 Construction Activities

The construction activities that would be required for the proposed projects have many characteristics in common. Bulldozers, backhoes, and front-end loaders would be on site throughout periods of excavation and/or site preparation. Dump trucks would be on site intermittently, as would concrete-mixers and asphalt vehicles and associated machinery. Sufficient amounts of fuels, hydraulic fluids, and oils and lubricants required to support contractor vehicles and machinery would be stored on site during the project. No other hazardous fuels or solvents would be stored on site.

All material needs (e.g., steel, concrete, asphalt) would be supplied by off-site vendors. Each of the projects would require small amounts of electricity for the construction activities. No natural gas or steam would be required.

Non-hazardous construction debris would be transported to the Kirtland AFB landfill for disposal. Kirtland AFB, in an effort to meet Department of Air Force waste diversion standards, requests monthly reports by item description and weight of any materials removed for recycling or reuse by the contractor. An on-site dumpster would be provided by the contractor for other non-hazardous municipal solid waste (e.g., plastics, paper, and food waste) that could be generated by worker activity at the project sites. When the dumpster is full, the debris would be transported to a permitted Subtitle D landfill. Any cardboard waste would be separated and delivered to the base landfill or the Sandia National Laboratories, Solid Waste Transfer Station where a roll-off unit is available for cardboard recycling.

Salvageable metal debris resulting from construction activities would be removed and transported to the Defense Reutilization and Marketing Office at Kirtland AFB for recycling or to any certified recycling facility in accordance with Department of Defense Instruction 4715.4, Pollution Prevention, paragraph F.2.c.(3)(f). If a dust nuisance or hazard occurs during construction, water, supplied by Kirtland AFB, would be used for dust control.

Adequate parking would be available for worker vehicles on locations at and adjacent to the project sites. Potable water would be available to the workers in coolers furnished by either the general contractor or individual crews. Restroom facilities would consist of portable chemical toilets. No additional potable water or disposition of wastewater would be required.

2.2.2 Permits

Permits that would be required consist of the following general and construction permits for both air quality and the National Pollutant Discharge Elimination System (NPDES).

An Authority-to-Construct Permit from the City of Albuquerque (20.11.4.1 New Mexico Administrative Code) would be required for construction of the ACCF.

The Proposed Actions would require a Fugitive Dust Control Permit and Fugitive Dust Control Plan Application submittal to the City of Albuquerque Environmental Health Department Air Quality Control Division. Permit applications are required to be submitted at least 10 working days prior to start date of construction.

Individual construction sites (or common sites of development) that would result in disturbance of one (1) to five (5) acres (small construction) of total land area are required to be permitted under the NPDES General Permit for Storm Water Discharges from Construction Activities (Federal Register 2003). These construction activities require the preparation of a Storm Water Pollution Prevention Plan and a Notice of Intent to discharge in accordance with the General Construction Permit. The permitting of these construction activities would be coordinated through the Kirtland AFB Environmental Management Branch, Compliance Section.

2.3 ALTERNATIVES TO THE PROPOSED ACTIONS

2.3.1 HC-130P Flight Simulator Facility

The No-Action Alternative would be to not construct the new facility and allow current training conditions to prevail. Training for the HC-130P would continue to consist of classroom instruction and training on the MC-130P flight simulator located in Building #956.

2.3.2 Aircraft Corrosion Control Facility

The No-Action Alternative would be to not construct the facility. Spot painting as described under the Proposed Action would continue to be done outside of Hangar 1001 and parts painting would continue in Building #956.

2.3.3 Alternatives Considered, But Not Carried Forward

An alternative considered, but not carried forward, for the ACCF was to convert an existing facility on base. All existing facilities on base that could be converted to an ACCF are currently occupied and the existing operations cannot be moved elsewhere. For this reason, this alternative was eliminated from further consideration.

2.4 OTHER FUTURE ACTIONS ON THE BASE

There are seven other actions proposed on the base that could be considered as contributing to potential cumulative impacts in the analysis of these Proposed Actions. These actions are discussed in Section 5.

SECTION 3
AFFECTED ENVIRONMENT

3.1 HEALTH AND SAFETY

3.1.1 Definition of Resource

Health and safety issues are defined as those that directly affect the continued ability to protect and preserve life and property. Health and safety issues pertain to hazards that arise from physical conditions in the workplace and the actions of people working. The field of safety is focused on preventing accidents and mitigating damages resulting from accidents. An accident is an undesirable, unplanned event resulting in physical harm to people, damage to property, or interruption of business. An accident may be the result of an unsafe act or unsafe condition. Each worker must make a conscious effort to work safely, despite any adverse conditions of the work environment. A high degree of safety awareness must be maintained so that safety factors involved in a task become an integral part of that task.

Safety issues typically associated with and specific to military airfields include the potential for mid-air aircraft mishaps, aircraft collisions with objects on the ground (e.g., towers, buildings, or mountains), weather-related accidents, and bird-aircraft collisions. However, since the Proposed Actions analyzed in this Environmental Assessment (EA) do not affect the type or frequency of aircraft operations conducted at Kirtland Air Force Base (AFB) or Albuquerque International Sunport, this safety analysis focuses only on ground-based safety issues. The Proposed Actions would be built outside of the runway protection zones and clear zones, therefore, they are not discussed in this EA.

Because children may suffer disproportionately from environmental health risks and safety risks, Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risk,* was introduced in 1997. This EO prioritized the identification and assessment of environmental health risks and safety risks that may affect children and ensures that federal agencies' policies, programs, activities, and standards address environmental and safety risks to children.

3.1.2 Existing Conditions

3.1.2.1 Human Health

Contractor personnel for implementation of the Proposed Actions at Kirtland AFB would be responsible for ensuring ground safety and compliance with all applicable occupational health and safety regulations, and worker compensation programs. Contractors would also be required to conduct construction activities in a manner that would not pose any risk to personnel in the project vicinity.

3.1.2.2 Industrial Hygiene

Exposure to hazardous materials, use of personnel protective equipment, and availability of Material Safety Data Sheets are managed under industrial hygiene programs. Industrial hygiene is the joint responsibility of bioenvironmental engineering and contractor safety departments, as applicable. These responsibilities include:

- Reviewing all potentially hazardous workplace operations;
- Monitoring exposure to workplace chemicals (e.g., asbestos, lead, and hazardous materials), physical agents (e.g., noise and radiation), and biological agents (e.g., infectious waste);
- Recommending and evaluating controls (e.g., ventilators and respirators) to ensure personnel are properly protected; and
- Ensuring a medical surveillance program is in place to perform occupational health physicals for those workers subject to exposure to workplace hazards.

3.2 AIR QUALITY

3.2.1 Definition of Resource

Outdoor air quality in a given location is described by the concentration of various pollutants in the atmosphere. Air quality at a given location is a function of several factors, including the quantity and dispersion rates of pollutants in the region, temperature, the presence or absence of inversions, and topographic and geographic features of the region. For the purposes of this EA, Bernalillo County forms the region of concern for air quality. The US Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants, including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal to or less than ten micrometers in diameter, particulate matter equal to or less than 2.5 micrometers in diameter, and lead. The Clean Air Act (CAA) requires that all states attain compliance through adherence to the NAAQS, as demonstrated by the comparison of measured pollutant concentrations and the NAAQS.

The NAAQS represent the maximum levels of background pollution that are considered acceptable, with an adequate margin of safety to protect public health and welfare. These pollutants are typically quantified in units of parts per million, milligrams per cubic meter, or micrometers per cubic meter. The State of New Mexico has adopted additional standards for air quality, the New Mexico Ambient Air Quality Standards (NMAAQS), which apply a more stringent standard for CO, SO_2, and for the 24-hour standard for NO_2. Both the NAAQS and NMAAQS are depicted in Table 3-1.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS Value	Standard Type
Ozone	1-hour[1]	0.12 ppm (235 µg/m^3)	Primary and Secondary
	8-hour[2]	0.08 ppm (157 µg/m^3)	Primary and Secondary
Carbon monoxide	8- hour[3]	9 ppm (10 mg/m^3)	Primary
	1-hour[3]	35 ppm (40 mg/m^3)	Primary
Nitrogen dioxide	Annual (Arithmetic mean)	0.053 ppm (100 µg/m^3)	Primary and Secondary
	24-hour	None	
Sulfur dioxide	Annual (Arithmetic mean)	0.03 ppm (80 µg/m^3)	Primary
	24-hour[3]	0.14 ppm (365 µg/m^3)	Primary
	3-hour[3]	0.50 ppm (1300 µg/m^3)	Secondary
Particulate matter equal to or less than 10 micrometers in diameter	Annual[4] (Arithmetic mean)	50 µg/m^3	Primary and Secondary
	24-hour[3]	150 µg/m^3	Primary
Particulate matter equal to or less than 2.5 micrometers in diameter	Annual[5] (Arithmetic mean)	15 µg/m^3	Primary and Secondary
	24-hour[6]	65 µg/m^3	Primary
Lead	Quarterly	1.5 µg/m^3	Primary and Secondary

Source: Environmental Protection Agency, Air and Radiation 2004. Title 40, Part 50 of the Code of Federal Regulations.

Notes:
[1] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
[2] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is <= 1, as determined by Appendix H.
The 1-hour NAAQS will no longer apply to an area one year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004. (40 Code of Federal Regulations 50.9; see Federal Register of April 30, 2004 [69 Federal Register 23996].)
[3] Not to be exceeded more than once per year.
[4] To attain this standard, the expected annual arithmetic mean particulate matter equal to or less than 10 micrometers in diameter concentration at each monitor within an area must not exceed 50 ug/m^3.
[5] To attain this standard, the 3-year average of the annual arithmetic mean particulate matter equal to or less than 2.5 micrometers in diameter concentrations from single or multiple community-oriented monitors must not exceed 15 ug/m^3.
[6] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 ug/m^3.

NAAQS = National Ambient Air Quality Standards ppm = parts per million
µg/m^3 = micrometers per cubic meter mg/m^3 = milligrams per cubic meter

3.2.2 Existing Conditions

3.2.2.1 Climate and Regional Air Quality

The climate in the Albuquerque area is mild, sunny, and dry. The State of New Mexico, as well as the City of Albuquerque can be classified as a mild, arid or semiarid continental climate with light precipitation, abundant sunshine, and low relative humidity (New Mexico Climate Center 2004). High temperatures at Kirtland AFB average 90 degrees Fahrenheit (ºF) and low temperatures average 62ºF during the summer months. Winters have an average daily low temperature of 32ºF and an average daily high temperature of 58ºF (October to April) (New Mexico Climate Center 2004). Annual average precipitation in Bernalillo County ranges from 8 inches in the county's arid valley and mesa areas to 30 inches in the mountains east of Kirtland AFB. Precipitation increases with increasing elevation and occurs primarily during the summer months (US Department of Agriculture [USDA] 1977). Prevailing winds in the area are from the north during the winter months, and from the south along the river valley in the summer. The average annual wind speed is 9 miles per hour, with the spring months being the windy season.

The Albuquerque metropolitan area and Kirtland AFB are within New Mexico's Air Quality Control Region (AQCR) No. 2, which is one of 8 AQCRs in the state. Region No. 2 includes all of northwestern New Mexico. The Albuquerque Environmental Health Department (AEHD) performs air quality functions in Albuquerque, and the Albuquerque-Bernalillo County Air Quality Control Board governs them.

Bernalillo County has been designated as being in maintenance status for CO as of 15 June 1996 and is currently in attainment for all other federally regulated pollutants (EPA 2002). CO levels are currently at their lowest since the 1970s (CO levels were consistently violated during the 1970s and 1980s). O_3 levels have been increasing since 1990 and exceeded standards twice in 1999 (primarily NO_2 and volatile organic compounds from automobile emissions and industry) (AEHD 2000).

Table 3-2 displays 1999 CO emissions data for Bernalillo County. These are the latest accurate data available from the EPA and AEHD. Updated data should be available to the public in December 2005 (EPA 2004).

3.2.2.2 Air Quality In and Around the Project Area

An inventory was completed at Kirtland AFB to develop a list of the facilities on base that generate air emissions (both criteria pollutants and hazardous pollutants). Based upon the results of the emissions study, Kirtland AFB is subject to the Title V permitting requirements of the CAA. Kirtland AFB is currently a minor source of Hazardous Air Pollutant (HAPs) under Title I Section 112 of the CAA. The primary sources of emissions in the project area are from car exhaust, aerospace ground equipment, aircraft engine test facilities, and paint booths (US Air Force [USAF] 2003a). Table 3-3 shows air emissions for criteria pollutants and HAPs for the entire base.

Table 3-2. Emissions Inventory of Bernalillo County (1999)

Source Category	CO (tpy)	NO_2	$PM_{2.5}$	PM_{10}	SO_2	VOCs
Highway Vehicles	129,939	13,139	277.1	370.5	520.1	10,390
Off-Road Vehicles	48,580	2,625	263.47	286.87	284.75	3,446.94
Industrial Processes	1,166	8,414	188.8	310.20	3,058.38	235.9
Misc (fugitive dust)	0	0	10,381	59,938	0	0
Waste Disposal & Recycling	6,491.9	200.88	656.74	659.46	6.83	455.37
Aircraft	996	451	6.61	9.59	43.3	149
Railroads	25.3	252	5.67	6.31	14.7	10.8
Area Sources	3,341.67	1,829.2	598.9	613.40	106.33	10,034.38
Agriculture & Forestry	0	0	18.7	111	0	0
Storage & Transport	0	0	0	0	0	2,118
TOTAL	**190,540**	**26,911**	**12,398**	**62,305**	**4,034**	**26,842**

Source: Environmental Protection Agency 2002.

Notes: [a] Highway vehicles include motorcycles, light and heavy duty gasoline and diesel vehicles and trucks.
[b] Off highway vehicles include non-road gasoline and diesel vehicles.
[c] Area sources include residential wood burning, natural gas combustion and propane combustion, electric utilities, solvent utilization (dry cleaning and surface coating), as well as other small stationary point sources.
CO = carbon monoxide tpy = tons per year NO_2 = nitrogen dioxide
$PM_{2.5}$ = particulate matter equal to or less than 2.5 micrometers in diameter
PM_{10} = particulate matter equal to or less than 10 micrometers in diameter
SO_2 = sulfur dioxide VOCs = volatile organic compounds

Table 3-3. Summary of Calendar Year 2002 Air Emissions from Non-exempt Sources at Kirtland Air Force Base

Pollutant	Emissions	
	Actual[b] (tpy)	Allowable[b] (tpy)
Criteria Pollutants and Precursors		
Carbon monoxide	16.8	110
Nitrogen dioxide	18.7	178
Particulate Matter	13.5	42
Particulate matter equal to or less than 10 micrometers in diameter[a]	13.3	40
Sulfur dioxide	2.8	17
Volatile organic compounds	68.0	161
Hazardous Air Pollutants	4.9	16

Source: US Air Force 2003a.

Notes: [a] Particular matter ≤10 µm is a subset of particulate matter.
[b] These cumulative totals include emissions from 20 11.41 New Mexico Administration Code - Authority-to-Construct permitted sources and Title V sources.
tpy = tons per year

The primary sources of emissions for the 58th Special Operations Wing (58 SOW) are aircraft engine test facilities, paint booths, and aerospace ground equipment (USAF 2003a). Hazardous pollutant emissions from 58 SOW surface coating activities consist of methyl-isobutyl-ketone, toluene, xylenes, methyl-ethyl-ketone (2-Butanone), and

hexamethylene – 1,6- diisocyanate. Emissions vary for activity and pollutant. Current painting operations at Kirtland AFB include approximately 2,400 hours of painting (2,000 hours per year by paint guns) with approximately 20 aircraft being spot-painted each year. Painting for each aircraft takes about one week.

Table 3-4 and Table 3-5 give surface coating source information and emissions for the 58 SOW for 2002 and 2003.

Table 3-4. 2002 Surface Coating Source Information, 58th Special Operations Wing Kirtland Air Force Base

Building No.	Control Type	Amount Applied (gallons)
00482	Dry filter	12.8
01001	Dry filter	48.6
01001 (outside painting)	None	8.9
Total		**70.3**

Source: US Air Force 2003a.

Table 3-5. 2002-2003 Surface Coating Actual Emissions, 58th Special Operations Wing Kirtland Air Force Base

Pollutant	2003 Emissions (tons/year) for 58 SOW	2002 Emissions (tons/year) for 58 SOW	2002 Surface Coating Emissions (tons/year) for all of Kirtland AFB
Carbon monoxide	0	0	0
Nitrogen dioxide	0	0	0
Particulate matter	0.004	0.010	0.04
Particulate matter equal to or less than 10 micrometers in diameter	0.002	0.005	0.02
Sulfur dioxide	0	0	0
Volatile Organic Compounds	0.084	0.202	0.6
Hazardous Air Pollutants	0.01	0.04	0.1

Source: US Air Force 2003a and 2004.

3.3 NOISE

3.3.1 Definition of Resource

Noise is defined as unwanted sound or, more specifically, as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise 1992). Human response to noise varies according to the type and characteristics of the noise, distance between the noise source and the receptor, sensitivity of the receptor and time of day.

Due to wide variations in sound levels, sound is measured in decibels (dB), which is a unit of measure based on a logarithmic scale (e.g., 10-dB increase corresponds to a 100 percent increase in perceived sound). According to the EPA Office of Noise and Abatement (1972-1982), under most conditions, a 5-dB change is necessary for noise increases to be noticeable to humans. Sound measurement is further refined by using an A-weighted decibel scale (dBA) that emphasizes the range of sound frequencies that are most audible to the human ear (between 1,000 and 8,000 cycles per second).

A day-night average sound level is a noise metric that averages A-weighted sound levels over a 24-hour period, with an additional 10-dB penalty added to noise events occurring between 10:00 p.m. and 7:00 a.m.

Ambient background noise in urbanized areas typically varies from 60 to 70 dBA, but can be higher; suburban neighborhoods experience ambient noise levels of approximately 45 to 50 dBA (EPA 1978). Table 3-6 identifies noise levels associated with common indoor and outdoor activities and settings and identifies subjective human judgment of noise levels, specifically the perception of noise levels doubling or being halved.

A noise-sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some domestic animals or certain wildlife species.

3.3.2 Existing Conditions

Localized sources of noise in the area, both on and off base, include military and civilian aircraft operations at Albuquerque International Sunport and vehicle traffic at Kirtland AFB. The Sunport Noise Committee works with Kirtland AFB to manage the noise levels around the airport from military aircraft and allows engine runups for maintenance only in remote areas of the airport (City of Albuquerque 2003). The proposed facilities are in the Air Installation Compatible Use Zone identified as having average noise levels less than 65 dB. This classification is acceptable for all land uses, including noise-sensitive uses.

Table 3-6. Typical A-Weighted Sound Levels

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a few feet away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Moderately Loud	
Pneumatic Drill; Vacuum Cleaner	80	Moderately Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	
Average Office	60	Moderate	½ times as loud
Suburban Street	55	Moderate	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ times as loud
Large Transformer	45	Quiet	
Average Residence Without Stereo Playing	40	Faint	⅛ times as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing

Source: LSA Associates, Inc. 2002.

Traffic at Kirtland AFB constitutes a relatively small, localized source of noise. Gibson Blvd. is the roadway most frequently used for accessing the base from the west. From a small sample of observations in the vicinity of Kirtland AFB, it was noted that the peak traffic volumes entering and exiting the base through the Gibson Blvd. gate occur between the hours of 6:30 a.m. and 8:30 a.m. and between the hours of 3:30 p.m. and 5:30 p.m. (Kirtland AFB 1999).

3.4 LAND USE AND VISUAL RESOURCES

3.4.1 Definition of Resource

Land use is the classification of either natural or human-modified activities occurring at a given location. Natural land use includes rangeland and other open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, communications and utilities, agricultural, institutional, recreational, and other developed areas. Land use is regulated by management plans, policies, regulations, and ordinances (e.g. zoning) that determine the type and extent of land use allowable in specific areas and protect specially designated or environmentally sensitive areas.

Visual resources are defined as the natural and manufactured features that constitute the aesthetic qualities of an area. These features form the overall impression that an observer receives of an area (i.e. its landscape character). An area's susceptibility to visual impacts is related to visual sensitivity. Highly sensitive resources include national parks, recreation areas, historic sites, wild and scenic rivers, designated scenic roads and other areas specifically noted for aesthetic qualities.

3.4.2 Existing Conditions

The sites proposed for construction of the HC-130P Flight Simulator Facility (FSF) and Aircraft Corrosion Control Facility (ACCF) are currently open lots surrounded by administration and research facilities and/or airfield facilities (refer to Figure 2-1). The Proposed Actions would be located in Accident Potential Zone (APZ) I associated with the north end of Runway 3/21 (Figure 3-1). Land Use Compatibility Guidelines have been established to assist planners in determining the types of construction that can occur within clear zones and APZs I and II. Airfield associated facilities are generally acceptable within APZ I as long as they do not require major above-ground power transmission lines. Figure 3-2 shows existing land use on Kirtland AFB and the surrounding area.

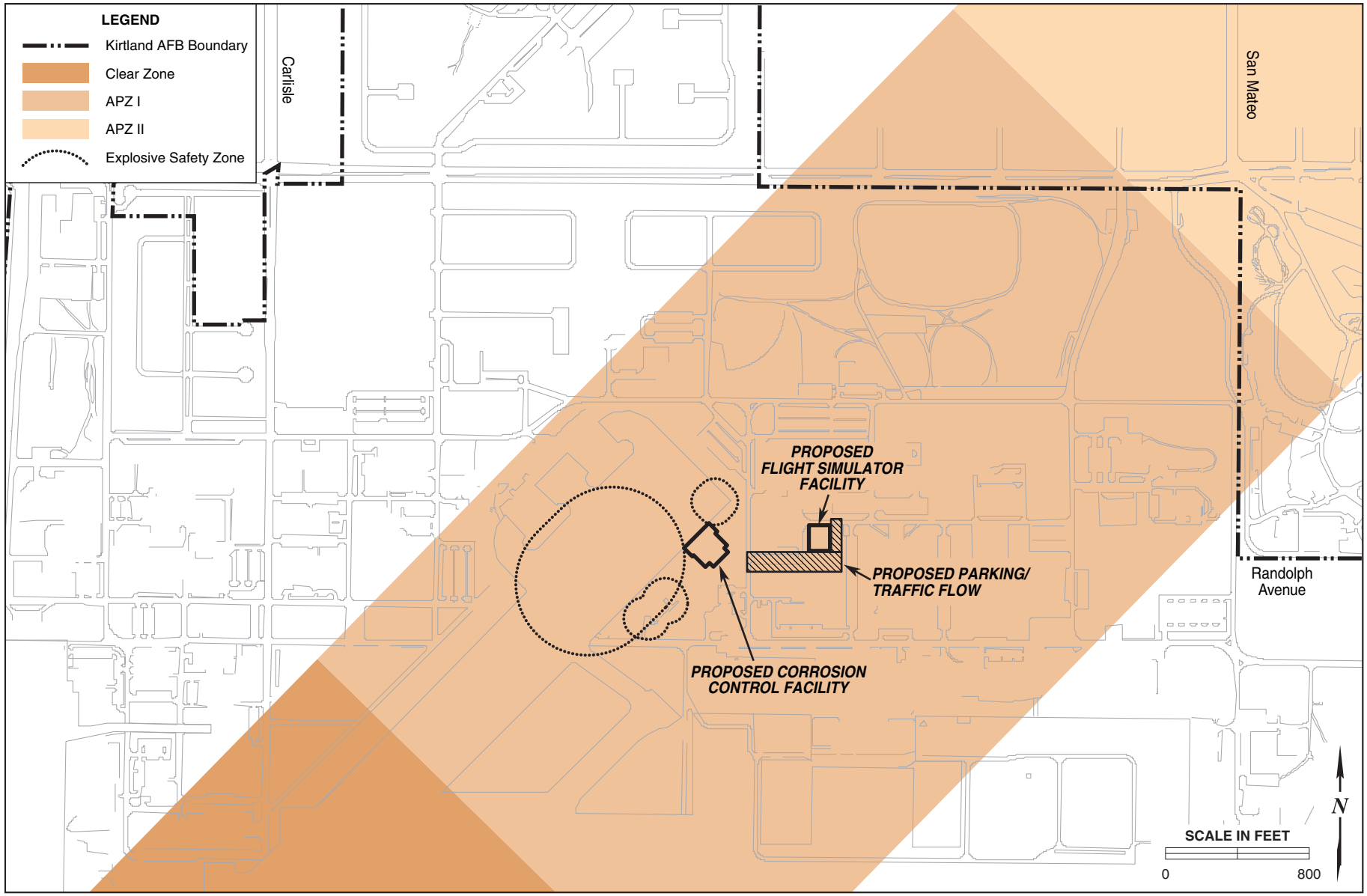
The visual environment at Kirtland AFB is characteristic of military and civilian airfields. Structures include hangars, maintenance and support facilities and navigational equipment. The research and administrative areas are predominantly older facilities on improved grounds. The proposed site for the HC-130P FSF is a vacant lot and the proposed site for the ACCF is an old baseball field adjacent to the flight line.

3.5 TRANSPORTATION AND UTILITIES

3.5.1 Transportation and Circulation

3.5.1.1 Definition of Resource

Transportation and circulation refer to the movement of vehicles throughout a roadway network. Roadway operating conditions and the capacity of the system to accommodate vehicles are described in terms of volume-to-capacity (V/C) ratio, which is a comparison of average daily traffic (ADT) volume to roadway capacity (Table 3-7). The V/C ratio corresponds to a Level of Service (LOS) rating, ranging from free-flowing traffic conditions (LOS "A") for a V/C of less than 60 percent, to congested "stop-and-go" conditions (LOS "F") for a V/C at or near 100 percent.



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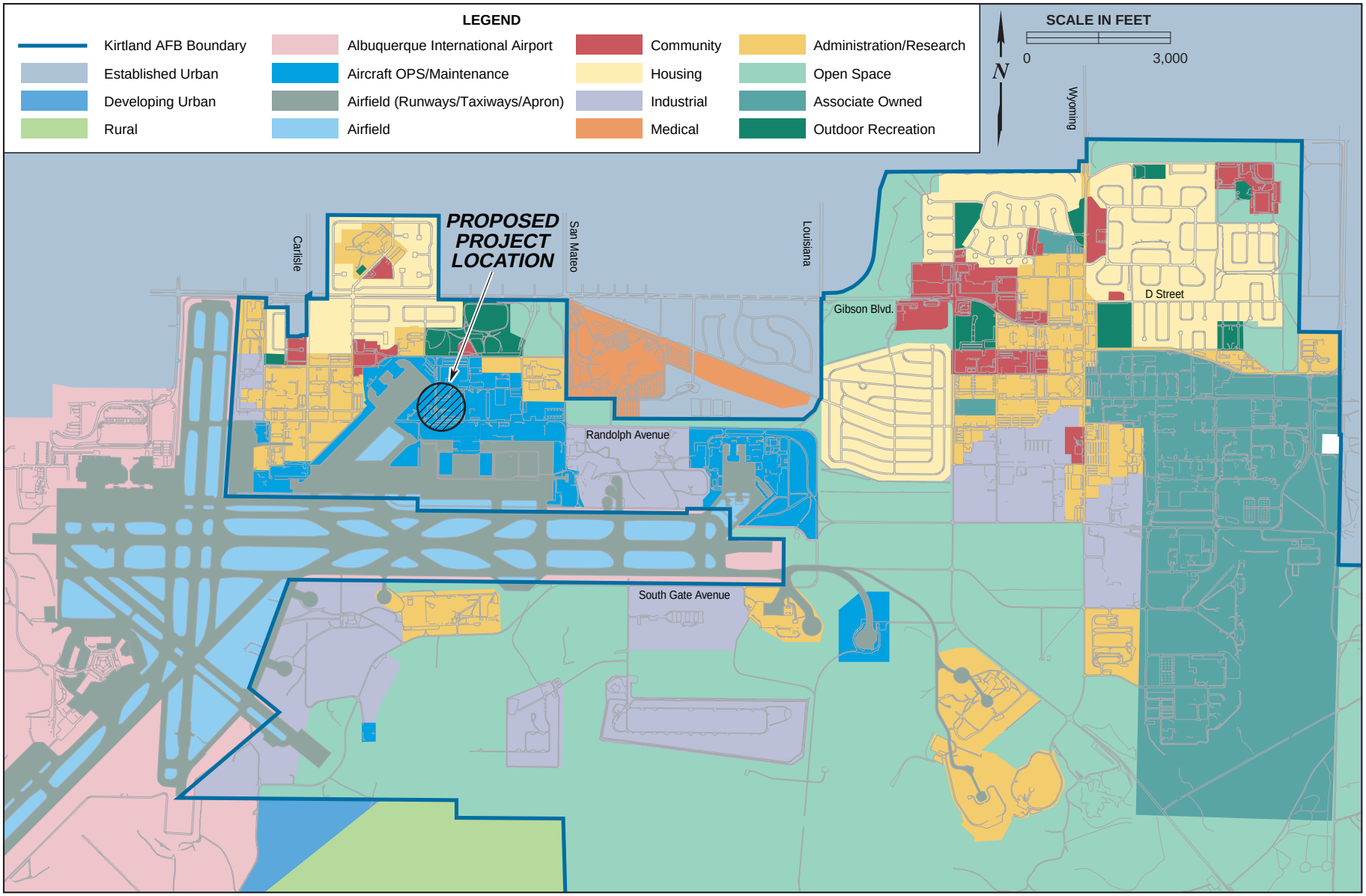
Explosive Safety, Clear, and Accident Potential Zones in the Area of the Proposed Action

FIGURE

3-1



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Existing Land Use at and in the Vicinity of the Proposed Project Location

FIGURE

3-2

Table 3-7. Level of Service and Volume-to-Capacity Ratio Descriptions

LOS	Quality of Traffic Operation	V/C Ratio
A	Free flow. Very good.	<0.60
B	Stable flow. Good.	0.61 - 0.70
C	Approaching unstable flow. Poor.	0.71 - 0.80
D	Unstable flow. Very poor.	0.81 - 0.90
E	Forced flow. Approaching failure.	0.91 - 1.00
F	Long delays. Failure.	≥1.00

Source: Transportation Research Board 2000.

3.5.1.2 Existing Conditions

Kirtland AFB lies about 4 miles east of Interstate 25 and 2 miles south of Interstate 40. Principal access to the developed area is provided by Wyoming Blvd. on the north, Gibson Blvd. on the west, and Eubank Blvd. on the east. These boulevards link directly with the surface street grid system of southeast Albuquerque, although no limited access expressways serve the base directly.

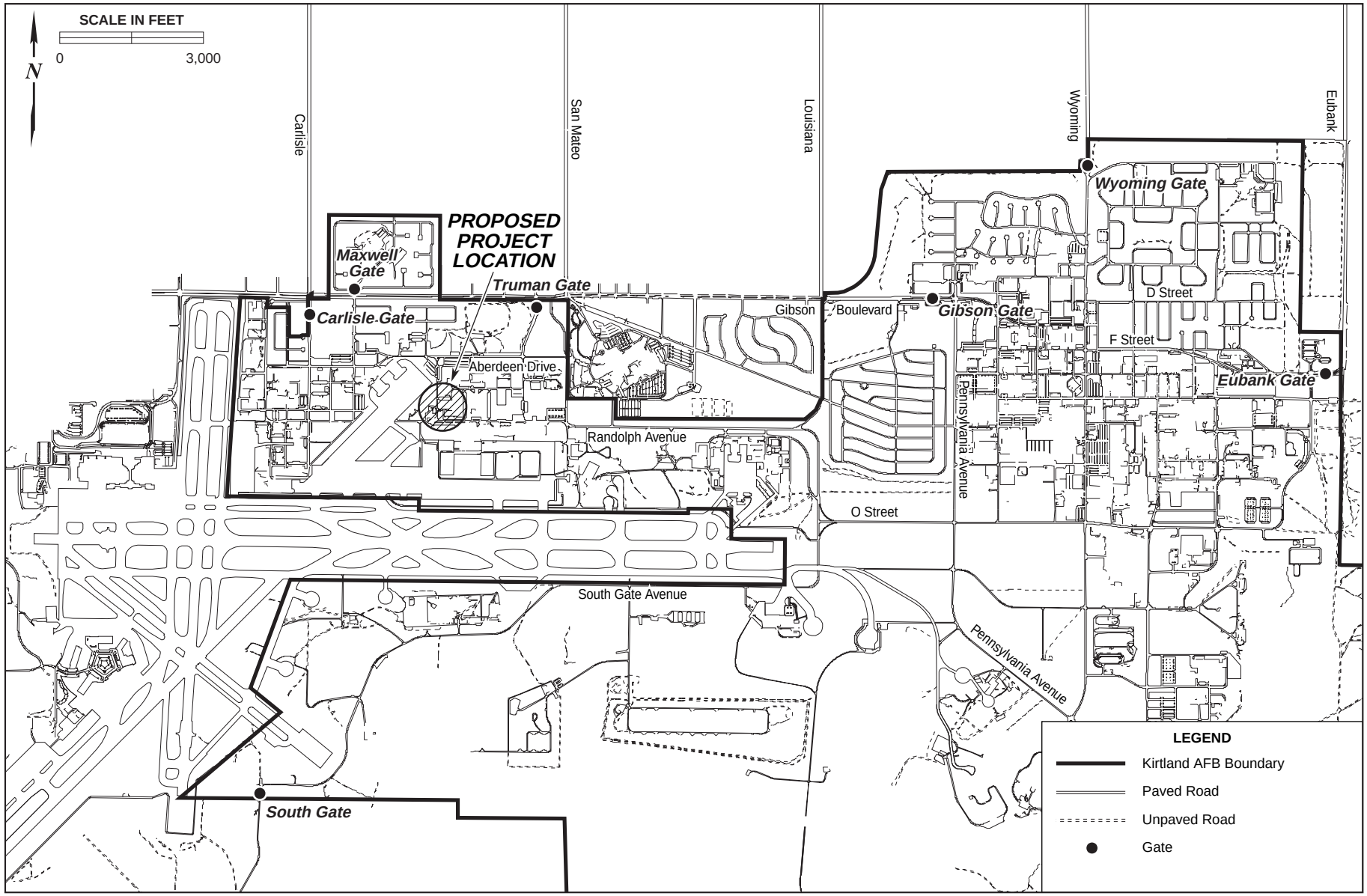
Major east-west arterials in the project area include Gibson Blvd. and Aberdeen Ave. Carlisle Blvd. and Truman St. are the main north-south arterials. Access to the 58 SOW and the proposed project sites is predominantly through the Truman Gate.

Circulation at Kirtland Air Force Base

Access to Kirtland AFB is gained through seven entrance/exit gates (Figure 3-3). Traffic flows relatively smoothly in the western portion of the developed area due to light traffic volumes and favorable intersection operations. A greater portion of the base population is located in the eastern portion of the developed area and many signalized intersections have been installed to control traffic. Traffic problems on Kirtland AFB generally occur during peak traffic periods (6:30 – 8:30 a.m. and 3:30 – 5:30 p.m.). The 1999 CAA Transportation Intermodal Study report for Kirtland AFB showed Pennsylvania St. (south of Gibson Blvd.), Wyoming Blvd. (south of M Ave.), Pennsylvania St. (north of Hardin Dr.), and Truman St. (south of Truman Gate) were unacceptably congested during peak hours.

Traffic Volumes

Table 3-8 shows the traffic volumes for the 12 major intersections within Kirtland AFB. Because the base is the largest employer in the Albuquerque area, it is the principal destination for commuters in the southern portion of the city. As a result, traffic tends to converge on the base gates with high ADT volumes and occasionally poor LOS ratings. The Truman St. and Aberdeen Ave. intersection is the nearest major intersection to the Proposed Actions and is located approximately ¼ mile to the northeast.



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Kirtland Air Force Base Transportation Network and Access Gates

FIGURE 3-3

Table 3-8. Kirtland AFB Traffic Analysis Data

Intersection	ADT [a]	Peak Hour	Peak Car/hour	Avg. Car/hour	LOS[b]
Carlisle Blvd. and Aberdeen Dr.	4,512	6:45 a.m.	903	188	B
San Mateo Blvd. and Randolph Ave.	6,768	6:45 a.m.	903	282	B
Pennsylvania St. and Gibson Blvd.	13,512	4:00 p.m.	1,803	563	B (a.m.) C (p.m.)
Truman and Aberdeen Dr.	8,904	6:45 a.m.	1,083	371	A (a.m.) B (p.m.)
Pennsylvania St. and Hardin Dr.	8,976	7:00 a.m.	1,196	374	B
Texas St. and Gibson Blvd.	9,720	4:00 p.m.	1,299	405	B
Wyoming Blvd. and Gibson Blvd.	14,016	4:00 p.m.	1,869	584	C
Wyoming Blvd. and F Ave.	14,016	7:00 a.m.	1,870	584	B
Wyoming Blvd. and Hardin Dr.	8,832	7:00 a.m.	1,176	368	B
9th St. and Hardin Dr.	6,480	7:00 a.m.	867	270	B
14th St. and Hardin Dr.	9,072	7:00 a.m.	1,211	378	D
20th St. and Gibson Blvd.	16,394	6:45 a.m.	2,490	812	A (a.m.) B (p.m.)

Source: Kirtland Air Force Base 1999.
Notes: [a] ADT is defined as the number of vehicles in a 24-hour period.
[b] LOS (Transportation Research Board 2004).
ADT = average daily traffic LOS = level of service

3.5.2 Utilities

3.5.2.1 Definition of Resource

Utilities are services provided including water, electricity, gas, sanitary sewer, telephone, and wastewater. The following sections describe these services on Kirtland AFB:

3.5.2.2 Existing Conditions

The following utilities are available on base with lines extending along Doris St. near both Proposed Actions locations.

Water Supply

Kirtland AFB's water supply comes from seven installation water wells and two interconnected distribution systems. The installation has on-site water storage capacity including a fire-fighting water supply. Water is also purchased from the City of Albuquerque on an as-needed basis.

Electric Power

Electric power for Kirtland AFB is purchased from the Public Service Company of New Mexico.

Natural Gas

The natural gas supplier for Kirtland AFB is Wasatch Energy LLC and is delivered in PNM Gas Services pipelines to facilities and housing on the installation.

Sanitary Sewer

Sanitary waste from the installation flows to the City of Albuquerque's wastewater facility.

Telephone Service

Kirtland AFB operates its own telephone switching system without any contracts with local telephone companies.

Wastewater

Kirtland AFB does not have separate industrial and municipal wastewater systems. The City of Albuquerque treats all of the sanitary sewage produced by Kirtland AFB. By the end of 2001, the base contributed 2.5 million gallons per day of wastewater to the city facility (USAF 2002). An industrial pretreatment program administered by the City of Albuquerque regulates industrial discharges from the base to sewer lines. A City of Albuquerque Wastewater Permit was reissued to Kirtland AFB in 2001 under the Sewer Usage and Wastewater Control Ordinance, bringing the base's total number of wastewater permits issued by the city to four. Kirtland AFB's permits are issued by the City of Albuquerque's publicly owned treatment works, which is currently regulated by an National Pollutant Discharge Elimination System (NPDES) Permit. Four manholes located on the base are used for monitoring the discharged water quality (USAF 1990). Kirtland AFB does not have an NPDES Industrial Discharge Permit.

3.6 GEOLOGICAL RESOURCES

3.6.1 Definition of Resource

The geological resources of an area consist of all soil and rock materials. Soils refer to unconsolidated earthen material overlying bedrock or other parent material. Since only minor surface disturbance would result from implementation of the Proposed Actions, only soil properties pertaining to erosion are described in this document. The geology of an area includes mineral deposits, notable landforms, tectonic features, and fossil remains.

3.6.2 Existing Conditions

3.6.2.1 Geology

Kirtland AFB is situated in the eastern portion of the Albuquerque Basin, which is one of the largest of a series of north-trending basins and measures 90 miles long and 30 miles wide (Fenneman 1931). The basin extends from the gently sloping area near the Rio Grande River to the steep foothills and slopes of the Manzanita and Manzano Mountains. The Proposed Actions are located on relatively flat terrain (i.e. less than a 5 percent slope). Much of the Albuquerque Basin consists of poorly consolidated sediments that eroded from the surrounding mountains following previous faulting and geologic activity.

3.6.2.2 Soils

The dominant soils of the Albuquerque Basin are well drained and loamy, with minor amounts of gravelly and stony soils along the mountains and arroyos. The predominant soil series found in the developed area of Kirtland AFB are Tijeras gravelly fine sandy loam, Madurez-Wink association, and Embudo gravelly fine sandy loam (USDA 1977). The primary soil types found at the proposed construction sites is Wink fine sandy loam and Laten sandy loam. Soil permeability for these associations is moderate and the water and wind erosion hazard is slight to moderate. Construction of buildings is not limited based on these soil types.

3.7 WATER RESOURCES

3.7.1 Definition of Resource

Water resources include all surface waters and groundwater and their availability for human use. For this analysis, those water resources located within the proposed project areas and the watershed areas affected by existing and potential runoff, including an area's potential for flooding (100-year floodplains), were investigated. Surface water resources comprise lakes, rivers, and streams and are important for economic, ecological, recreational, and human health reasons. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential potable resource in many areas; groundwater is commonly used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition.

Other issues relevant to water resources include watershed areas affected by existing and potential runoff and hazards associated with 100-year floodplains. Floodplains are belts of low, level ground present on one or both sides of a stream channel and are subject to periodic inundation by floodwater. Inundation dangers associated with floodplains have prompted federal, state, and local legislation that limit development in these areas largely to recreation and preservation activities. The 100-year floodplain on Kirtland AFB is shown on Figure 3-4.

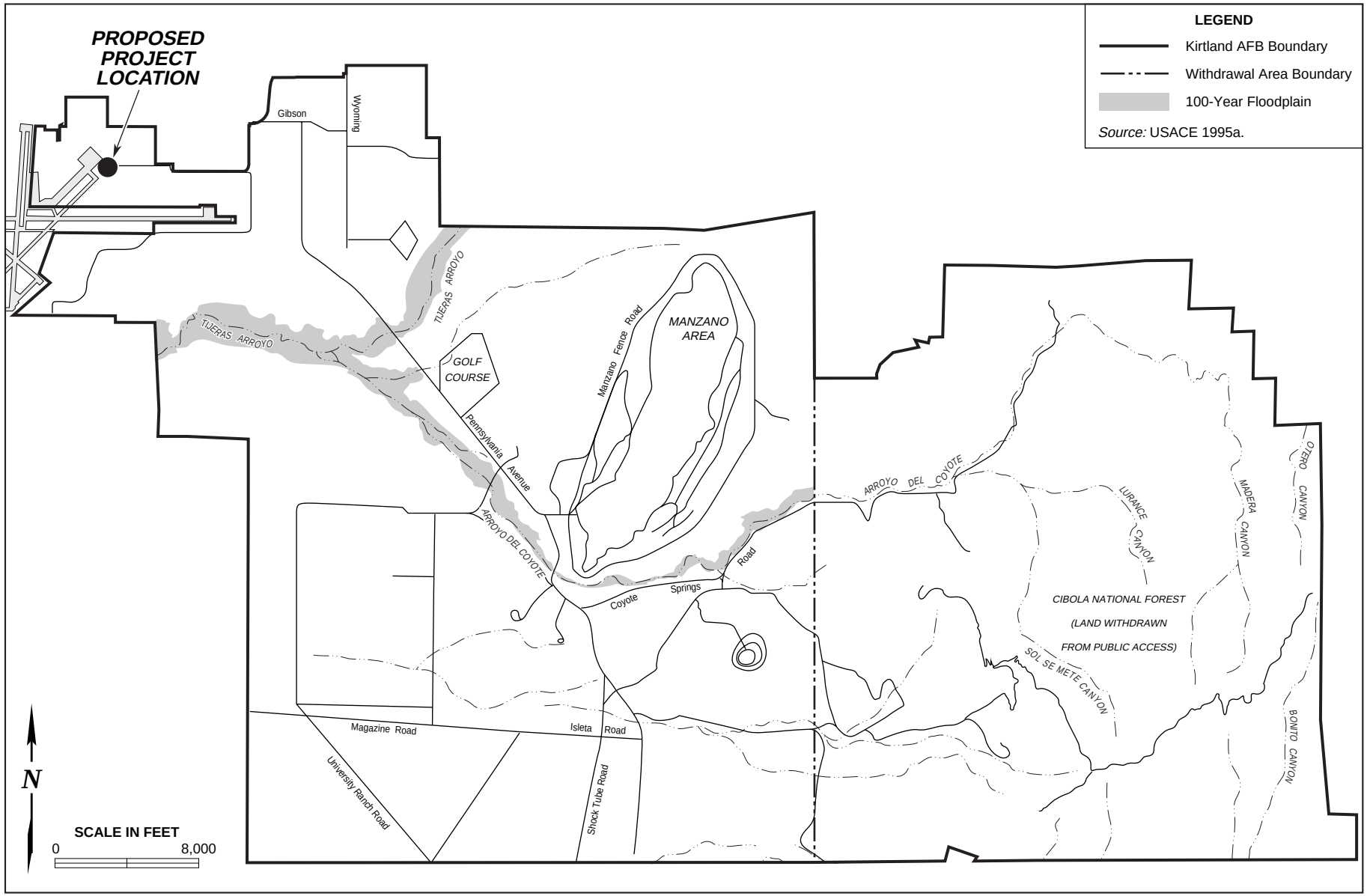

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FIGURE

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100-Year Floodplain on Kirtland Air Force Base

3-4

3.7.2 Existing Conditions

3.7.2.1 Surface Water

The Rio Grande River is the major surface hydrologic feature in central New Mexico, flowing north to south through Albuquerque, approximately 5 miles west of Kirtland AFB. Minor surface water bodies exist on the East Mesa as small wetlands, such as Coyote Springs and Sol se Mete Spring or as small reservoirs such as the ponds located at Tijeras Arroyo Golf Course. East Mesa surface water occurs in the form of storm water sheet flows that drain into small gullies when it rains. The primary surface channels that drain runoff from Kirtland AFB to the Rio Grande River are the Tijeras Arroyo and Arroyo del Coyote. These arroyos are water-carved channels that are dry for most of the year. Precipitation reaches these arroyos through a series of storm drains, flood canals, and unnamed smaller arroyos. Surface water from the base enters Tijeras Arroyo from where it crosses the northeast corner of Kirtland AFB to south of Albuquerque International Sunport, and drains eventually into the Rio Grande River (USAF 1991). Arroyo del Coyote collects water from Madera, Lurance and Sol se Mete Canyons in the Manzanita Mountains and drains into Tijeras Arroyo approximately one mile west of the Tijeras Arroyo Golf Course.

Both Arroyo del Coyote and Tijeras Arroyo flow intermittently during heavy thunderstorms and spring snowmelt (US Army Corps of Engineers [USACE] 1979a). However, nearly 95 percent of the precipitation that flows through the Tijeras Arroyo evaporates before it reaches the Rio Grande River. The remaining 5 percent is equally divided between runoff and groundwater recharge (USAF 1991). The Proposed Actions would not be built on or near any surface drainage channels.

Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and EO 11990, *Protection of Wetlands*. Wetlands are defined by the USACE (Federal Register 1982) and EPA (Federal Register 1980) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] § 328.3(b), 1984). The closest jurisdictional wetlands, at Coyote Springs, are several miles from the Proposed Actions.

3.7.2.2 Floodplains

Flooding on Kirtland AFB generally occurs between May and October during high-intensity thunderstorms (USACE 1979b). Tijeras Arroyo and Arroyo del Coyote floods are characterized by high peak flows, small volumes, and short duration. Although flooding occurs infrequently, vegetation can encroach into these arroyos' channels, obstructing the flow of water and causing flooding. A 100-year floodplain encompasses these arroyos and follows their paths. The Proposed Actions are located more than a mile north of the Tijeras Arroyo 100-year floodplain.

3.7.2.3 Groundwater

Kirtland AFB is located within the limits of the Rio Grande Underground Water Basin, which has been defined by the State of New Mexico as a natural resource area and has been designated as a "declared underground water basin." The state regulates it as a sole source of potable water. The average depth to groundwater beneath Kirtland AFB is 450 to 550 feet. The Rio Grande Basin's source of groundwater is the Santa Fe Aquifer. Albuquerque relies on groundwater as its sole potable water source.

3.7.2.4 Water Supply at Kirtland Air Force Base

Water on base is supplied by seven installation water wells and two separate, but interconnected distribution systems. These systems were developed separately for Sandia Base and Kirtland AFB before they were combined into a single installation. Water is also purchased from the City of Albuquerque. Water purchased from the city is primarily for use in meeting peak demands, for providing water when wells are out of service, and to keep water production within water rights allocations.

3.8 BIOLOGICAL RESOURCES

3.8.1 Definition of Resource

Biological resources include native, naturalized, or introduced plants and animals and the habitats in which they occur. Protected species are defined as those listed as threatened, endangered, proposed, or candidate for listing by the US Fish and Wildlife Service (USFWS); New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD); and/or the New Mexico Department of Game and Fish (NMDG&F). Federal species of concern, formerly known as category two candidate species, are not protected by law; however, these species could become listed, and therefore are considered when addressing biological impacts of an action on biological resources. The New Mexico Natural Heritage Program maintains a listing of threatened or endangered species. NMEMNRD holds the responsibility for identifying and listing sensitive plant species considered in this analysis. Animal species of special concern to the NMDG&F are also considered.

Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the Endangered Species Act (ESA) and sensitive ecological areas as designated by state or federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer/winter habitats).

3.8.2 Existing Conditions

Kirtland AFB lies at the intersection of four major North American physiographic and biotic provinces: the Great Plains, Great Basin, Rocky Mountains, and Chihuahuan Desert. Vegetation and wildlife found within Kirtland AFB are influenced by each of

these provinces, the Great Basin being the most dominant. However, the Proposed Actions would be located in an area of the base that has been heavily developed since the 1950s. Vegetation in the area consists primarily of turf grasses, ornamentals, and cultivated varieties of plants with a few native species of trees (i.e. cottonwoods, elm) and invasive weeds. Wildlife species in the area of the Proposed Actions include species adapted to human disturbance such as; starlings, robins, grackles, sparrows, rabbits, and prairie dogs.

Threatened and Endangered Species

Seventeen federal or state-listed threatened or endangered species could occur in Bernalillo County. Of these, only eight potentially occur at Kirtland AFB. Federally threatened and endangered species are legally protected under the ESA. In addition, seven federal species of concern and one state sensitive plant species inhabit or potentially inhabit the base and Withdrawal Area. In New Mexico, threatened and endangered animal species are protected by the New Mexico Wildlife Act. The NMEMNRD maintains listings of state threatened and endangered plants, which are protected under the New Mexico Endangered Plant Species Act. These species and their potential to occur on base are listed in Appendix B.

Because the Proposed Actions are located in the middle of a heavily developed portion of the base, very few sensitive species are likely to be found in the area. The bald eagle, ferruginous hawk, spotted bat, American peregrine falcon, and the Baird's sparrow are not known to utilize the base for any extended periods of time, but may migrate through the area at certain times of the year.

A pair of western burrowing owls (*Athene cunicularia hypugaea*), a federal species of concern, are known to be nesting on the site of the proposed ACCF (Finley 2004). The state threatened gray vireo (*Vireo vicinior*) is known to occur on base, but suitable habitat is not found near the Proposed Actions.

3.9 CULTURAL RESOURCES

3.9.1 Definition of Resource

Historic properties (i.e. significant cultural resources) are classified as buildings, sites, districts, structures, or objects. A building is created to shelter any form of human activity. A structure is distinguished from a building in that it is a construction designed for purposes other than creating human shelter. Objects are constructions that are primarily artistic in nature or are relatively small and simply constructed. A site is the location of a significant event, a prehistoric or historic activity, or a building or structure whose location possesses value. A district is a concentration or linkage of sites, buildings, structures, or objects that are united historically or aesthetically by plan or development.

The criteria for establishing significance are set forth in Title 36 CFR Part 60.4. Procedures for the application of the National Register criteria for evaluation are found in various National Park Service bulletins. These bulletins provide guidelines so that decisions concerning significance, integrity, and treatment can be reliably made.

3.9.2 Existing Conditions

Over 400 historic and prehistoric cultural resources are known on Kirtland AFB. These include historic buildings, structures, and sites dating from European contact, ca. AD 1540, through the Cold War, ca. AD 1945-1991. Prehistoric sites dating from the Paleo-Indian Period to the Pueblo Period have been recorded.

Under Section 106 of the National Historic Preservation Act (NHPA) the USAF is required to asses the impacts of undertakings prior to their initiation to ensure that there will be no adverse effects on historic properties (36 CFR 800). Section 110 of the NHPA requires the USAF to complete an inventory of historic properties located on its land (36 CFR 60, 63, 78, 79, and 800).

The developed area of the base has been subject to repeated surface modifications. An archaeological inventory of 16,090 acres of Kirtland AFB land was recently conducted under Section 110 (Sullivan et al. 2002). Included in this inventory were several sample transects through open areas of the developed part of the base. Significant ground disturbances were noted on all of these transects, generally from ground leveling, grading, utilities construction, and recreational activities. Sullivan et al. (1999a) also performed a cultural resource survey in other open areas of the developed area of the base as part of a proposed plan to privatize military housing units. All of these areas had undergone substantial ground modifications. Other small archaeological inventories conducted within the developed area of the base resulted in the same conclusion. Among these were studies by Evaskovich (1993), Peyton (1992), Sullivan and Schilz (1999b and 1999c), and Sullivan et al. (1999b). None of these reported the presence of significant cultural resources; most stated that the level of ground disturbance was such that it would have destroyed any cultural resource.

There are no archaeological sites located within a one-half mile radius of the Proposed Actions.

3.10 SOCIOECONOMICS

3.10.1 Definition of Resource

Socioeconomics are defined as the basic attributes and resources associated with the human environment. A Region of Influence (ROI) is defined as the geographic area or region wherein the project-induced changes to the socioeconomic environment would occur (Canter 1996). The ROI for the Proposed Actions is Bernalillo County. Socioeconomic activity can encompass many areas such as population trends, economic history, employment, income levels, land-use patterns, land values, tax levels, housing

characteristics, public services (i.e., law enforcement, utilities, fire protection), educational resources, transportation systems, community attitudes and lifestyles, recreation and tourism, and areas of unique significance. Only those socioeconomic components that would experience site specific environmental changes are included in this section.

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* was issued to focus attention of federal agencies on human health and environmental conditions in minority and low-income communities and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed. The Presidential Memorandum that accompanied EO 12898 states that federal agencies "shall analyze the environmental effects, including human health, economic and social effects of federal actions including effects on minority and low-income populations." To provide a thorough environmental justice evaluation, particular attention is given to the distribution of race and poverty status in areas potentially affected by implementation of the Proposed Actions.

3.10.2 Existing Conditions

New Mexico and the ROI represent a diverse economy. Nonagricultural employment and the transportation and services industries represent the largest growth sector in New Mexico and in the ROI. Also, tourism has become one of New Mexico's largest industries. According to the Tourism Association of New Mexico, tourism is a $3.9 billion industry. Major employers within the ROI include Kirtland AFB, the state's largest university, as well as medical and other government facilities.

3.10.2.1 Population

The ROI had an estimated population of 581,442 in 2003 (US Census Bureau 2003a). This was a 1.5 percent increase from 2002.

According to the US Census Bureau's 2002 American Community Survey Profile, the Hispanic or Latino (of any race) population accounted for 43 percent of the population, the non-Hispanic white population accounted for 47 percent of the population. The Black or African American population accounted for 2 percent of the total population, the American Indian or Alaskan Native population accounted for 4 percent of the total population, the Asian population accounted for 2 percent, native Hawaiian and other Pacific Islanders .08 percent, and other races accounted for 0.1 percent and the population consisting of two or more races accounted for 2 percent (US Census Bureau 2003b).

3.10.2.2 Economy within the Region of Influence

As the largest employer in New Mexico, Kirtland AFB plays an important role in the economy of the local area or Economic Impact Region (EIR). (The EIR is defined as all counties encompassing a 50-mile radius from the center of the base.) Kirtland AFB had

approximately 24,000 employees in Fiscal Year (FY) 2002 (USAF 2003b). The goods and services purchased by base employees in the local area create secondary jobs and wages, further adding to its total economic importance to the local area. The economic contribution (dollar impact) of Kirtland AFB to the EIR in FY 2002 was estimated at nearly $4 billion (USAF 2003b).

The State of New Mexico ranks 48th in the US in terms of per capita income. In 2001, New Mexico's per capita income was $23,155 and in 2000 it was $21,827. In Bernalillo County the personal per capita income was $27,253 (New Mexico Department of Labor 2003). Annual average unemployment rates in 2000 and 2001 within the ROI were at 3 and 3.4 percent, respectively. Table 3-9 shows nonagricultural employment within the US, New Mexico, and the Albuquerque Metropolitan Statistical Area (MSA) which consists of Bernalillo, Sandoval, and Valencia counties.

Table 3-9. Nonagricultural Employment in the United States, New Mexico, and the Albuquerque Metropolitan Statistical Area, 2001

Industry	United States		New Mexico		Albuquerque MSA	
	2001 Annual Average*	Percent of Total	2001 Annual Average	Percent of Total	2001 Annual Average	Percent of Total
Total Nonagricultural Employment	132,212	100.0	756,800	100.0	359,200	100.0
Manufacturing	17,698	13.4	43,100	5.7	24,200	6.7
Mining	563	0.4	16,200	2.1	100	0.0
Construction	6,861	5.2	45,900	6.1	28,300	7.9
Transportation & Public Utilities	7,070	5.3	37,300	4.9	19,900	5.5
Wholesale & Retail Trade	30,502	23.1	173,700	23.0	83,600	23.3
Finance Insurance and Real Estate	7,623	5.8	32,600	4.3	19,500	5.4
Services & Miscellaneous	41,023	31.0	222,200	29.4	114,900	32.0
Government	20,873	15.8	185,800	24.6	68,800	19.2

Source: New Mexico Department of Labor 2003.
Note: 2001 preliminary figures. Due to rounding, detail may not sum to total.
MSA = Metropolitan Statistical Area

3.10.2.3 Housing

In 2002, the ROI contained 248,663 housing units with 227,536 occupied and 21,127 vacant units (US Census Bureau 2003b). The home ownership rate in the ROI in 2000 was 64 percent, (US Census Bureau 2003c).

3.10.2.4 Kirtland Air Force Base

Kirtland AFB expenditures in FY 2002, including payroll, totaled over $3 billion. Total economic impact from the annual operating expenditures from Kirtland AFB was estimated to be nearly $4 billion. Table 3-10 provides additional information relating to the economic impact of Kirtland AFB activities on the local community (USAF 2003b).

Employment at Kirtland AFB totaled approximately 24,000 at the end of FY 2002. The Department of Defense (DoD) work force reached 5,500, of which 4,500 employees were active duty military, 1,060 reserve, and Air National Guard personnel. Federal civilian employees including contract civilians included 14,700 by the end of FY 2002.

Table 3-10. Local Economic Impact, Kirtland Air Force Base, Fiscal Year 2002

Category	Amount
PAYROLL	
Military payroll	$235,463,012
Appropriated Fund Civilian payroll	$265,427,932
Other Civilian/contractor payroll	1,546,376,431
TOTAL ANNUAL PAYROLL	$2,047,267,375
ANNUAL EXPENDITURES IN THE LOCAL COMMUNITY	
Construction projects	$183,405,714
Service contracts	$357,840,861
Local Purchases	$507,617,204
TOTAL NON-PAY	$1,048,863,779
TOTAL EXPENDITURES (ANNUAL PAYROLL + NON-PAY)	**$3,096,131,154**
TOTAL ESTIMATED ANNUAL DOLLAR VALUE OF JOBS CREATED	**$894,030,676**
TOTAL ANNUAL ECONOMIC IMPACT ESTIMATE (EXPENDITURES + ESTIMATED DOLLAR VALUE OF JOBS CREATED)	**$3,990,161,830**

Source: US Air Force 2003b

By the end of FY 2002, an estimated 811 military personnel (both active duty and guard/reserve) were living in family housing at Kirtland AFB, and approximately 4,700 military personnel were living off base.

3.10.3 Environmental Justice Considerations

According to the Federal Interagency Working Group on Environmental Justice, "adverse environmental impacts are defined as having a negative impact or effect on human health or the environment that is significant, unacceptable or above generally accepted norms. Adverse environmental effects may include ecological, cultural, human health, economic, or social impacts when interrelated to impacts on the natural or physical environment."

This section provides information on minority and low-income populations throughout the ROI. An environmental justice analysis must be conducted only if there is an adverse environmental impact as a result of the Proposed Actions.

3.10.3.1 Minority Population

According to the 2000 census, virtually every tract within the Albuquerque MSA had a population in which at least 25 percent of the population was a minority or non-white. North and south of Albuquerque, along the Rio Grande River and east of the base, there are a number of towns and villages, consisting primarily of Hispanic populations, including Los Ranchos (37 percent Hispanic); Tijeras Village (56 percent); Belen (69 percent); Bernalillo (75 percent); Bosque Farms (30 percent); Corrales (26 percent); Los Chaves (54 percent); Los Lunas (59 percent); Tome-Adelino (63 percent); and Valencia (50 percent) (US Census Bureau 2003d).

There are also nine primarily American Indian communities within the Albuquerque MSA. Much of the northern boundary of the Isleta Indian Reservation coincides with the southern boundary of Kirtland AFB, but the Isleta people primarily live near the Rio Grande, several miles from the boundary with the base.

Seven additional Indian reservations, with persons residing in dense settlements known as pueblos, are located in the Sandoval County portion of the Albuquerque MSA. In 2000, these reservations included Sandia Pueblo (4,414 residents); Santa Ana Pueblo with (487); San Felipe Pueblo (3,185); Santo Domingo Pueblo (3,166); Cochiti Pueblo (1,502); Zia Pueblo (646); and Jemez Pueblo (1,958) (US Census Bureau 2003d).

3.10.3.2 Low-Income Population

In 2000, persons with low incomes were not nearly as prevalent throughout the ROI as were minority persons. Poverty levels for the ROI in 2000 were at 10.2 percent for families and 13.7 percent for individuals. The most notable socioeconomic characteristic of the Indian communities is the large number of low-income persons. For comparison, the Isleta Pueblo within the ROI had 36.2 percent of its family population at or below poverty level and 38.5 percent of individuals at or below poverty level.

3.11 HAZARDOUS MATERIALS, HAZARDOUS WASTES, AND SOLID WASTES

3.11.1 Definition of Activity

Hazardous materials are defined as substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity which may cause an increase in mortality, a serious irreversible illness, or incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous wastes are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

Hazardous materials that are typically associated with Air Force installations include petroleum products, pesticides, herbicides, paints, and solvents. Other potentially hazardous material and waste issues are associated with underground storage tanks. Solid waste consists of municipal solid waste such as everyday items (e.g., bottles, food scraps, newspapers, grass clippings, furniture, clothing, paint, batteries).

To protect people and habitats from inadvertent and potentially harmful releases of hazardous substances, DoD has dictated that all facilities develop and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans and/or Hazardous Waste Management Plans. The SPCC regulation (Section 311 of the CWA) is used for all DoD facilities. This regulation serves as a program to prevent, prepare for, and respond to oil spills occurring in navigable waters of the US, and protects people and habitats from potentially harmful releases of hazardous substances. Hazardous and solid wastes are both regulated by the Resource Conservation and Recovery Act (RCRA). Each state operates its own waste management programs in addition to following federal standards. Waste management also involves recycling, source reduction, and pollution prevention programs.

In addition, DoD has developed the Installation Restoration Program (IRP) which is intended to facilitate thorough investigation and cleanup of contaminated sites located at military installations. The IRP follows legislation regarding hazardous materials and disposal of waste such as the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 amended by the 1986 Superfund Amendments and Reauthorization Act. Other legislation addressing hazardous materials and wastes includes the Toxic Substances Control Act, the Pollution Prevention Act, the CAA National Emissions Standards for Hazardous Air Pollutants (40 CFR 61), and the Emergency Planning and Community Right-to-Know Act, in addition to a variety of state and local regulations.

Environmental management activities at Kirtland AFB consist of the treatment and/or disposal of sanitary sewage, municipal solid waste, and industrial waste, including hazardous waste. In addition to the activities related to currently generated waste, the IRP is intended to identify, confirm, quantify, and remediate problems caused by past management of hazardous wastes at DoD facilities.

3.11.2 Existing Conditions

The following sections describe hazardous materials, hazardous wastes, and solid waste management at Kirtland AFB.

3.11.2.1 Hazardous Materials and Wastes

Hazardous materials that are currently used by the 58 SOW for aircraft painting include paints, solvents, primers, thinners, epoxy, adhesives, and sealing compounds. A complete list of approved hazardous materials used by the 58 SOW are listed in Appendix C. A number of potentially hazardous wastes are stored at Kirtland AFB. An

annually updated management plan is followed for the collection, storage, and disposal of hazardous waste in accordance with applicable federal, state, and local standards. Special guidance documents are followed for the disposal of asbestos, hydrazine, and radioactive materials, and for the prevention of spills (USAF 1990).

Hazardous wastes generated at Kirtland AFB are associated with operation of industrial shops and research and development laboratories, pesticide and herbicide application, radiological testing, fire control training, and fuel management. Wastes generated by these activities vary from year to year, depending on research activities and mission assignments. The types and amounts of hazardous waste generated by current aircraft painting operations are listed in Table 3-11. Hazardous wastes generated at the base include petroleum, oil and lubricants, acids and bases, non-halogenated and halogenated solvents, and organic compounds. Hazardous wastes that are recycled include surplus chemicals such as halogenated solvents and silver-bearing photographic materials.

Table 3-11. Estimates of Solid Waste Generated by Kirtland Air Force Base (in tons)

Year	Waste Generated by Commercial Activities[a]	Waste Generated by Housing on Base[b]	Waste Generated by Construction and Demolition[c]
1996	3,583	1,677	90,729
1997	4,362	2,318	40,848
1998	4,213	2,180	43,650
1999	3,783	1,863	36,699
2000	4,087	1,644	46,298
2001	3,766	1,403	53,075
2002	3,638	1,177	3,190

Source: Kitt 2003.
Notes: [a] sent to Waste Management facilities at Rio Rancho and Torrance County.
[b] sent to Rio Rancho Waste Management facility
[c] waste sent to Kirtland AFB landfill

3.11.2.2 Solid Waste

Solid municipal waste generated by commercial activities and housing on base is sent to Waste Management of New Mexico sites off base. These sites include the Rio Rancho and Torrance County facilities. Waste generated by construction and demolition activities are taken to the Kirtland AFB Landfill. This landfill is expected to be in operation until the year 2005 (Kirtland AFB General Plan 2002). The estimated amount of landfill waste generated on Kirtland AFB is shown in Table 3-12. All solid wastes are disposed of in accordance with USAF, Kirtland AFB, and applicable federal, state, and local regulations.

Table 3-12. Hazardous Waste Produced Per Year by the 58th Special Operations Wing at Kirtland Air Force Base during Aircraft Painting Operations

Type of Hazardous Waste	Amount of Hazardous Waste
Plastic bead media	1976 lbs
Paint related waste	2524 lbs
Paint related rags	231 lbs
Paint booth filters	130 lbs
Plastic media filters	100 lbs
Chromic acid conversion	18 lbs
Sealants, adhesives, and rags	248 lbs

Notes: lbs = pounds

Kirtland AFB operates as a large-quantity generator of hazardous waste and as a treatment, storage, and disposal facility. A RCRA Part B Permit issued by the State of New Mexico to Kirtland AFB regulates the collection and storage of hazardous waste. Hazardous waste collection and storage sites are operated by the Defense Reutilization and Marketing Office which arranges off-site disposal of the waste. Some wastes are collected by outside contractors at designated collection points. Photographic laboratory wastes are discharged to sanitary sewers following silver recovery and neutralization. Asbestos and asbestos-containing materials found in numerous buildings at the base are handled in accordance with the Kirtland AFB Asbestos Management Plan (USAF undated). Currently, hazardous waste and hazardous materials are transported to Hangar 1001C from the outdoor painting location.

The IRP at Kirtland AFB forms the basis for assessment and response actions under the provisions of CERCLA. As of March 2002, 77 IRP sites and 15 Areas of Concern had been identified at the base (Sillerud 2002). The closest IRP sites are located more than 1,000 feet from the proposed facilities.

SECTION 4
ENVIRONMENTAL CONSEQUENCES

4.1 HEALTH AND SAFETY

4.1.1 Methodology

An impact to safety would be considered significant if implementation of a proposed action would substantially increase risks associated with mishap potential or safety relevant to the public or the environment. For example, if implementation of a proposed action would render existing base facilities incompatible with safety criteria (e.g. explosive safety zones), safety impacts would be considered significant.

An impact to children from environmental health risks or safety risks would be considered significant if a proposed action would result in a disproportionate adverse impact to the health or safety of children.

4.1.2 Impacts

Potential impacts to human health and safety were determined by comparing present conditions with conditions that would occur from construction and operation of the new facilities. Changes in safety resulting from these Proposed Actions were quantified by examining the project sites in relation to the explosive safety zones on the base. Encroachment on these zones was assessed and compared with the risk of the actions involved.

Analysis of potential impacts to children includes: 1) identifying and describing hazards that could potentially affect children; 2) examining the Proposed Actions and the potential effects these actions may have on children; and 3) assessing the significance of potential impacts. If potential adverse impacts are identified, mitigation measures are proposed to minimize or alleviate the impacts.

4.1.2.1 Proposed Actions

Implementation of the Proposed Actions would not change the current health and safety environment at Kirtland Air Force Base (AFB). Contractor personnel would be responsible for complying with all applicable occupational health and safety regulations and would be required to conduct construction activities in a manner that would not pose any risks to personnel at or near the construction sites.

The proposed facilities do not encroach upon explosive safety zones so these areas would not affect the Proposed Actions.

Construction and operations would be conducted in accordance with all applicable state and federal regulations for health and safety.

There would be no disproportionate increase in environmental health and safety risks to children from the Proposed Actions. Children would not be present in the construction area, nor would they be present during facility operation. Therefore, possible disproportionate negative impacts to children identified in Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risk,* would not occur.

4.1.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in continued use of the existing facilities. There would be no change to current conditions of safety or risks to children on base.

4.2 AIR QUALITY

4.2.1 Methodology

The 1990 amendments to the Clean Air Act (CAA) require federal agencies to conform to the affected State Implementation Plan (SIP) with respect to achieving and maintaining attainment of National Ambient Air Quality Standards (NAAQS) and addressing air quality impacts. An adverse air quality impact resulting from a proposed action would be significant if it would: (1) increase concentrations of ambient criteria pollutants or ozone precursors to levels exceeding NAAQS, (2) increase concentrations of pollutants already at nonattainment levels, (3) lead to establishment of a new nonattainment area by the governor of the state or the Environmental Protection Agency (EPA), or (4) delay achievement of attainment in accordance with the SIP.

The CAA General Conformity Rule states that nonattainment and maintenance areas must conform to the applicable SIP. Kirtland AFB is covered by a carbon monoxide (CO) maintenance plan, and the applicable de minimis level for CO is 100 tons per year (tpy). Total CO emissions in the Albuquerque-Bernalillo County air basin are estimated to be 190,540 tpy, the latest year for which these data are available. Therefore, CO emissions from mobile, area, and stationary, as well as construction phase emissions associated with a project at Kirtland AFB would not be considered regionally significant unless they were in excess of 19,054 tpy (10 percent of 190,540). The CAA conformity rule states that only net emissions must be considered.

4.2.2 Impacts

Construction emissions from the Proposed Actions may temporarily affect sensitive receptors on base. However, emissions from construction vehicles and equipment would be temporary and minor. Estimated CO emissions from construction and privately owned vehicles and equipment are outlined in Table 4-1. Construction emissions would be well below threshold levels and the county and EPA standards.

Table 4-1. Carbon Monoxide Emissions Generated by the Proposed Actions

Categories	CO Emission Factors[a] lb/hr	Total CO Emissions lb/yr	Total CO Emissions Tons/yr
Privately Owned Vehicles[b]	4.68	5,616	2.81
Off-Highway Trucks	3.68	3,533	1.77
Excavator	5.20	4,992	2.50
Compressor	1.07	1,027	0.51
Crane	1.63	1,565	0.78
Tractor/Loader/Backhoe	2.91	2,794	1.40
Cement/Mortar Mixer	0.98	941	0.47
Dumpers/Tenders	3.68	3,533	1.77
Other Construction Equipment	1.97	1,891	0.95
Total	**22.82**	**21,908**	**12.96**

Albuquerque/Bernalillo County Standard[c]	200,000 lb/yr
Environmental Protection Agency Standard[d]	200,000 lb/yr

Notes: [a] Emission Factors for heavy-duty, diesel-powered construction equipment were obtained from the Non-road Engine and Vehicle Emission Study-Report, Office of Air And Radiation, Environmental Protection Agency, November 1991.

[b] Calculation of the Contractor Owned Vehicles Category was calculated using the US Air Force Air Conformity Applicability Model for 10 contractor-owned vehicles commuting to the base using a 30-mile round trip.

[c] Standard obtained from Ambient Air Quality, New Mexico Environment Department, Air Quality Bureau, October 2002.

[d] 40 Code of Federal Regulations 93.153(B)(1) – Carbon Monoxide Standard for Non-Attainment Areas.

CO – carbon monoxide lb/hr = pounds per hour tons/yr = tons per year
lb/yr = pounds per year

Assumptions:
The work period for each of the categories of equipment was calculated for two pieces of equipment running 8 hours per day for 5 days per week for 24 weeks. Each project would generate specific amounts of carbon monoxide, based on the duration of the project. The amount of carbon monoxide emitted is tabulated both individually by project, and combined as if all construction project activities occurred concurrently.

4.2.2.1 Proposed Actions

Minor emissions would result from the construction of both the HC-130P Flight Simulator Facility (FSF) and the Aircraft Corrosion Control Facility (ACCF) from dust and emissions from construction equipment, ground disturbance, and site preparation activities. These emissions would be short-term and only occur during the construction phase. The construction activities would require a Fugitive Dust Control Permit and Fugitive Dust Control Plan Application submittal to the City of Albuquerque Environmental Health Department Air Quality Control Division.

Table 4-2 shows the Proposed Actions emissions from construction activities and Table 4-3 shows emissions from operation of both facilities calculated using the US Air Force Conformity Applicability Model. Under the General Conformity Rule, a conformity determination analysis would not be needed for the Proposed Actions because emissions would not be increased by ten percent or more for individual non-attainment pollutants or exceed de minimis threshold levels established in 40 Code of Federal Regulations (CFR)

93.153(B) for individual non-attainment pollutants where an area has been redesignated as a maintenance area.

Emissions would be below the allowable pollutant thresholds under Kirtland's December 2002 Title V Operating Permit application. An Authority-to-Construct Permit from the City of Albuquerque would be needed since it is estimated that construction of both facilities would exceed ten pounds per hour or 25 tpy of CO, a regulated air contaminant.

Table 4-2. Construction Emissions for the HC-130P Flight Simulator and Aircraft Corrosion Control Facilities (tons/year)

Category	CO	NO_2	VOC	SO_2	PM_{10}
Proposed Action Construction Emissions	12.96[b]	4.85	0.55	1.39	0.77
De Minimis Thresholds	100	NA	NA	NA	NA
Ten Percent of County Budget	19,054	NA	NA	NA	NA
Kirtland Air Force Base Stationary Source Emissions	16.8	18.7	68	2.8	13.3
Allowable[a]	110	178	161	17	40

Notes: Calculated using the US Air Force Conformity Applicability Model v. 4.0.3, 2004.
[a] Taken from Kirtland Air Force Base 2002 air emissions inventory, US Air Force 2003a.
[b] Calculation from Table 4-1 for carbon monoxide.
CO = carbon monoxide NO_2 – nitrogen dioxide VOC = volatile organic compound
SO_2 – sulfur dioxide PM_{10} – particulate matter equal to or less than 10 micrometers in diameter

Table 4-3. Operation Emissions for the Aircraft Corrosion Control Facility (tons/year)

Category	CO	NO_2	VOC	SO_2	PM_{10}
Proposed Action Operations Emissions	4.67	0.43	0.02	0.62	0.05
De Minimis Thresholds	100	NA	NA	NA	NA
Ten Percent of County Budget	19,054	NA	NA	NA	NA
Kirtland AFB Stationary Source Emissions	16.8	18.7	68	2.8	13.3
Allowable[a]	110	178	161	17	40

Notes: Calculated using the US Air Force Conformity Applicability Model v. 4.0.3, 2004.
[a] Taken from Kirtland Air Force Base 2002 air emissions inventory, US Air Force 2003a.
CO = carbon monoxide NO_2 – nitrogen dioxide VOC = volatile organic compound
SO_2 – sulfur dioxide PM_{10} – particulate matter equal to or less than 10 micrometers in diameter

Operation of the new ACCF would not generate or increase current criteria pollutant or hazardous air pollutant emissions from paints/sealants/adhesives since it would be replacing the same type and amount of painting that is currently being done on base. The new ACCF would have dry filters (as described below) for particulate matter emissions. There would be no change in volatile organic compound (VOC) emissions from current activities as there would continue to be no VOC controls or equipment to limit emissions from operations.

Paint fume exhausts for the new ACCF would pass through three-stage filter banks before being exhausted (Kirtland AFB 2003). There would be a minor beneficial impact to future air emissions from the operation of the facility due to the use of these dry filters for particulate matter emissions, since current operations are conducted in hangars or outside with no emission controls. Kirtland AFB would be compliant with industry standards for efficiency (Kirtland AFB 2003).

The operation of the new facility could support painting of eleven (11) C-130s, thirteen (13) H-60s, ten (10) H-53s, seven (7) H-1s, and six (6) CV-22s (if the beddown of those aircraft were to occur in the future). However, only spot painting and painting of aircraft parts of current aircraft, would occur under the Proposed Actions. If any changes to the operation of the ACCF were to be proposed in the future, environmental documentation of potential impacts to air quality would occur prior to being implemented.

Construction and operation of both the HC-130P FSF and ACCF would create no significant changes to the regional or site-specific air quality as described in Section 3, therefore, no significant impacts to air quality would occur.

4.2.2.2 No-Action Alternative

Under the No-Action Alternative, the MC-130 flight simulator would continue to be used and aircraft painting would continue in an outside setting. The outside painting would continue to contribute a slight amount of particulate matter to the air from the paint operations but these amounts are not significant. There would be no changes to current air quality.

4.3 NOISE

4.3.1 Methodology

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e. if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e. if the number of sensitive receptors exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e. if they result in increased exposure of sensitive receptors to unacceptable noise levels). Noise impacts would be considered significant if there would be significant change from baseline conditions, if health and safety standards were violated, if sensitive receptors were disproportionately affected, or if damage resulted to personal property.

4.3.2 Impacts

Land use guidelines established by the US Department of Housing and Urban Development and based on findings of the Federal Interagency Committee on Noise recommend acceptable levels of noise exposure for various types of land uses. Projected

noise impacts from the Proposed Actions and alternatives were evaluated quantitatively against these acceptable noise levels.

4.3.2.1 Proposed Actions

Construction of both Proposed Actions would be minor and short-term with noise being generated from vehicles and heavy-duty construction equipment. Table 4-4 shows typical noise levels generated from various types of construction equipment. Operation of the FSF would have no impact on noise. Noise generated from the taxiing of aircraft to the ACCF would be insignificant since the facility would be located adjacent to the flight lines and taxiing of aircraft already occurs in the area.

4.3.2.2 No-Action Alternative

Under the No-Action Alternative, these facilities would not be constructed and operations would continue at their present locations; therefore, no changes to the noise environment would occur.

4.4 LAND USE AND VISUAL RESOURCES

4.4.1 Methodology

Potential impacts to land use from a proposed action are evaluated by determining if an action is compatible with existing land use and in compliance with adopted land use plans and policies. In general, land use impacts would be considered significant if they would: (1) be inconsistent or noncompliant with applicable land use plans and policies, (2) prevent continued use or occupation of an area, or (3) be incompatible with adjacent or nearby land use to the extent that public health or safety is threatened.

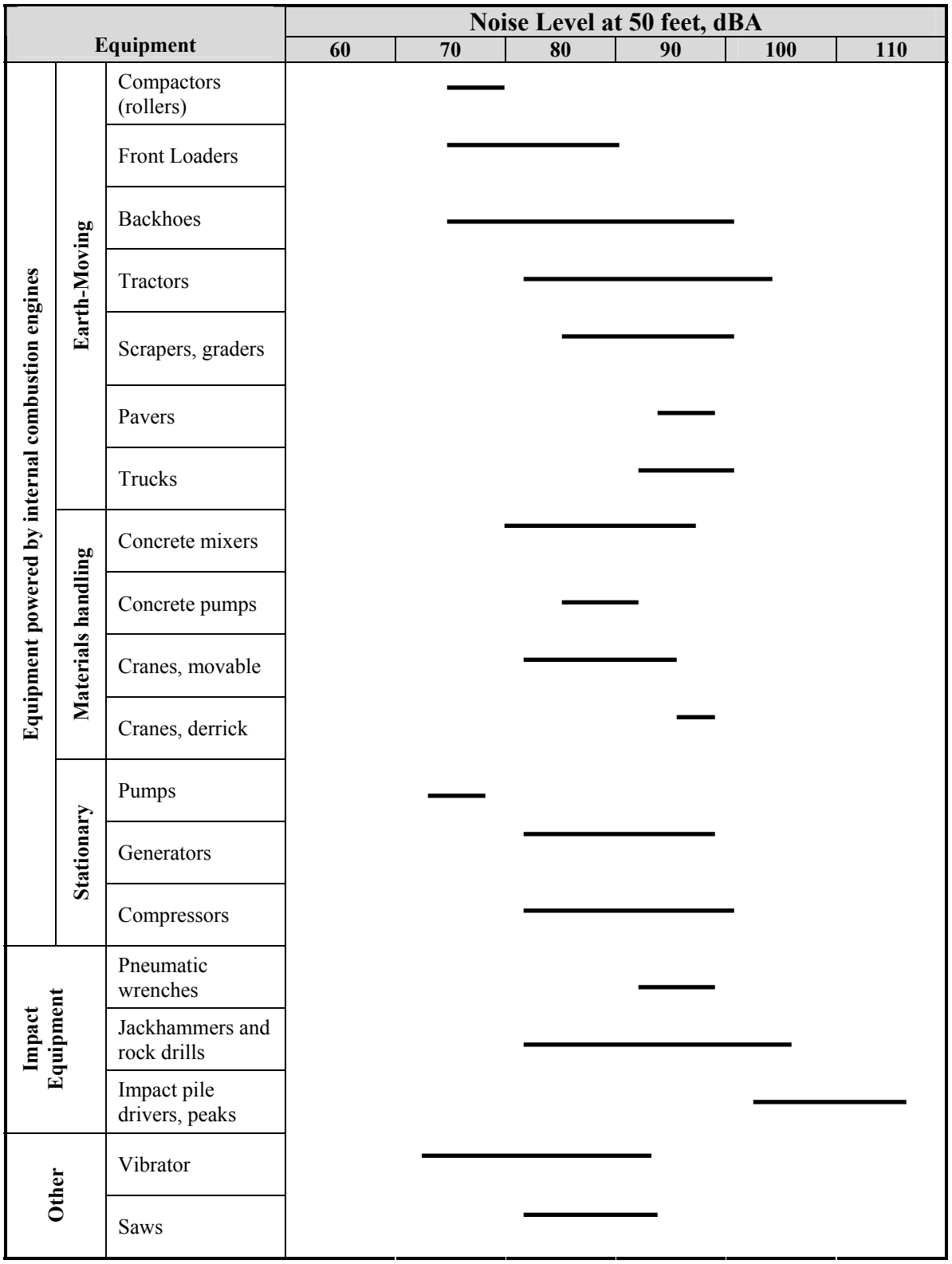
Methodologies for determining the impacts to visual resources are based on the level of visual sensitivity in an area.

4.4.2 Impacts

Potential land use impacts were analyzed by: (1) identifying and describing land uses that could affect or be affected by the projects, (2) examining the effects these actions may have on the resource, (3) assessing the significance of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

After assessing the visual character and relative sensitivity of the affected setting, changes to the landscape associated with the Proposed Actions and alternatives were analyzed in terms of their potential to noticeably alter existing viewsheds.

Table 4-4. Construction-Equipment Noise Ranges



Source: Environmental Protection Agency 1972.
Notes: Based on limited available data samples. dBA = A-weighted decibels

4.4.2.1 Proposed Actions

The Proposed Actions would locate the FSF and ACCF facilities adjacent to an airfield runway and other airfield support facilities. This location is compatible with present use and future land use for new airfield-related development. Construction activities for the Proposed Actions would have a minor and short-term impact on land use and visual resources. Appropriate site planning and design treatments would be used to minimize the visual impact of parking facilities. Once construction was completed, land use and visual resources would remain compatible with existing land uses and visual resources, therefore no impacts to these resources would occur. The proposed facilities are within accident potential zone (APZ) I of the runway (refer to Figure 3-1). The construction and operation of these facilities would be compatible with Air Force Guidelines for uses within APZ I.

4.4.2.2 No-Action Alternative

Under the No-Action Alternative the proposed facilities would not be built, therefore no changes to land use or visual resources would occur.

4.5 TRANSPORTATION AND UTILITIES

4.5.1 Methodology

Impacts to transportation and circulation are assessed by determining an action's potential to change current transportation patterns, systems, service, and safety. Impacts may arise from physical changes to circulation (e.g., closing, rerouting, or creating roads), construction activity disrupting existing local-area traffic patterns, or changes in daily or peak-hour traffic volumes created by workforce and population changes related to installation activities. An impact on roadway capacities would be considered significant if a road with no history of over-capacity traffic volumes were forced to operate at or beyond its design capability. An impact also would be considered significant if the action would increase traffic on roads already experiencing traffic problems.

Impacts to utility services are assessed by determining if the action would result in a change in utility services including water, electricity, natural gas, sewer, telephone, solid waste disposal services, or wastewater. An impact to utilities would be significant if the action would require construction to expand utility lines or add additional utility services to support utility needs.

4.5.2 Impacts

Potential impacts to transportation and circulation from the Proposed Actions and alternatives were analyzed by: (1) identifying and describing transportation and circulation that could affect or be affected by the project, (2) examining the effects the

action may have on the resource, (3) assessing the significance of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

Potential impacts to utilities from the Proposed Actions were analyzed by comparing utility service needs to current resources.

4.5.2.1 Proposed Actions

4.5.2.1.1 Transportation and Circulation

The construction of the proposed HC-130P FSF and the ACCF would have a short-term impact on transportation and circulation as a result of increased traffic from construction vehicles and heavy equipment. Construction of the proposed facilities would result in increased construction worker and material-hauling vehicle trips to and from the project sites as well as dump truck trips to landfills. Once built, these facilities would have very little impact on traffic circulation since the personnel proposed to work at the ACCF would replace those currently conducting painting operations on base. An additional 25 people would be associated with the FSF.

4.5.2.1.2. Utilities

The proposed location of the Proposed Actions is an area of the base that is occupied by numerous aircraft support, administrative and research facilities therefore, adequate utilities already exist along Doris St. The action would not create a need for an expansion of utility services. Wastewater associated with sanding and wash down of aircraft surfaces would pass through an oil/water separator before being discharged. No significant impacts are anticipated to any base utilities as a result of the construction or operation of the HC-130P FSF or the ACCF.

4.5.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current transportation and circulation conditions or utilities at Kirtland AFB.

4.6 GEOLOGICAL RESOURCES

4.6.1 Methodology

An impact to geological resources would be considered significant if implementation of a proposed action would violate a federal, state, or local law or regulation protecting geological resources (e.g., impacted unique landforms or rock formations), or result in uncontrolled erosion over a larger area than that allowed by regulations protecting soil resources.

4.6.2 Impacts

Protection of unique geologic features and minimization of soil erosion are considered when evaluating impacts of a proposed action on geological resources. Generally, such impacts are not considered significant if proper construction techniques and erosion control measures can be implemented to minimize short- and long-term disturbance to soils and overcome limitations imposed by earth resources.

4.6.2.1 Proposed Actions

Implementation of the Proposed Actions would result in no significant impacts to regional geological resources. The proposed site for the HC-130P FSF is a vacant lot and the proposed site for the ACCF is an old baseball field adjacent to the flight line. These soils have been disturbed during the construction of surrounding facilities. Therefore, construction of the Proposed Actions would have little impact on existing soils. Some wind erosion of soils may occur during construction, but this would be controlled using standard best management practices. The site currently has exposed soils and wind erosion already occurs at some level. Once construction of the Proposed Actions is complete, soil erosion would be reduced by landscaping the area. The region's infrequent seismic activity would create no significant threat to construction workers given the use of standard construction procedures for facilities of this size and type.

4.6.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current geological resources at Kirtland AFB. Some minor wind erosion would continue on exposed soils.

4.7 WATER RESOURCES

4.7.1 Methodology

Criteria for determining the significance of impacts to water resources are based on water availability, quality, and use; existence of floodplains and wetlands; and applicable regulations. An impact to water resources would be considered significant if it would: (1) reduce or interfere with water availability to existing users, (2) create or contribute to overdraft of groundwater basins, (3) exceed safe annual yield of water supply sources, (4) adversely affect water quality or otherwise endanger public health, (5) threaten or damage unique hydrologic characteristics, or (6) violate established laws or regulations that have been adopted to protect or manage water resources. Impacts to floodplains would be considered significant if a proposed action would alter flow within a floodplain.

Determination of the significance of wetland impacts is based on: (1) the function and value of the wetland, (2) the proportion of the wetland that would be affected relative to the occurrence of similar wetlands in the region, (3) the sensitivity of the wetland to proposed activities, and (4) the duration of ecological ramifications. Impacts to wetland resources are considered significant if high value wetlands would be adversely affected.

4.7.2 Impacts

Potential impacts to water resources resulting from the Proposed Actions and alternatives were analyzed by: (1) identifying and describing the effects these actions may have on the resource, (2) assessing the significance of potential impacts, and (3) providing measures to mitigate potentially significant impacts.

4.7.2.1 Proposed Actions

No significant impacts to water resources are expected to occur from implementation of the Proposed Actions. Water quality would not be affected as construction activities would be shallow and not approach the groundwater table. Furthermore, any hazardous materials generated at the ACCF would be disposed of properly and, therefore, would not contaminate the groundwater. Since the Proposed Actions are not located near a floodplain or wetland, these resources would not be impacted. Water consumption would increase slightly. Consumption of water would be limited to lavatories, water fountains, and other personal water use. Due to the relatively small number of people using these facilities, increase in water use would be insignificant.

Proposed construction of the FSF and its associated parking lot would result in the disturbance of more than one acre, and thus would require a permit under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Construction Activities. These construction activities would require the preparation of a Storm Water Pollution Prevention Plan and a Notice of Intent to discharge in accordance with the General Construction Permit. If more than one acre were disturbed for construction of the ACCF, a similar permit and plan would be required for that construction.

4.7.2.2 No-Action Alternative

Under the No-Action Alternative, there would be no changes to current water resources at Kirtland AFB.

4.8 BIOLOGICAL RESOURCES

4.8.1 Methodology

Determination of the significance of impacts to biological resources is based on: (1) the importance (legal, commercial, recreational, ecological, or scientific) of the resource; (2) the proportion of the resource that would be affected relative to its occurrence in the region; (3) the sensitivity of the resource to proposed activities; and (4) the duration of ecological ramifications. Impacts to biological resources are considered significant if species or habitats of high concern are adversely affected over relatively large areas, or disturbances cause reductions in population size or distribution of a species of special concern.

4.8.2 Impacts

Sensitive species or habitats in the vicinity of the project sites were identified and potential impacts to biological resources, such as habitat loss and noise, resulting from implementation of the Proposed Actions were evaluated.

4.8.2.1 Proposed Actions

No significant impacts are expected to occur to biological resources from the construction and operation of the proposed facilities. Some vegetation would be removed, but this consists mainly of weedy species that have little wildlife value. Wildlife that use burrows such as rabbits, mice, and prairie dogs may inadvertently be destroyed during construction as burrows occurring on the site could be excavated or crushed. These species are common throughout the base; therefore, the few individuals lost would have little impact on wildlife populations in the area. No impacts to wetlands would occur since none exist in the immediate area (i.e. within one mile).

Burrowing owls, a sensitive species, are potentially affected by the Proposed Actions. Currently, there is a pair of burrowing owls located at the site of the ACCF. However, burrowing owls migrate south every year during October to February. Prior to any construction activity, both sites would be surveyed for burrowing owls to determine if burrowing owl mitigation measures are necessary. If the ACCF construction begins while the owls are present (i.e. March through September) they would be relocated to suitable habitat on base, using methods already established and used successfully by base personnel. If the owls are present and incubating eggs, the construction may not begin until after the young have fledged. Permitting is required from the US Fish and Wildlife Service for relocating burrowing owls. If relocation needs to take place, the permitting process would be initiated at the earliest possible time to prevent construction delays. In the event that the owls do not migrate south, they would be relocated.

4.8.2.2 No-Action Alternative

Under the No-Action Alternative, there would be no changes to biological resources. No endangered or sensitive species are present at the existing facilities.

4.9 CULTURAL RESOURCES

4.9.1 Methodology

The National Historic Preservation Act of 1966, as amended, establishes the National Register of Historic Places and Title 36 CFR Section 60.4 defines the criteria used to establish significance and eligibility to the National Register as follows:

"The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance

that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and,

- That are associated with events that have made a significant contribution to the broad patterns of our history; or
- That are associated with the lives of persons significant in our past; or
- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- That have yielded, or may be likely to yield, information important in prehistory or history."

4.9.2 Impacts

Analysis of potential impacts to significant cultural resources considers both direct and indirect impacts. Impacts may occur by:

- Physically altering, damaging, or destroying all or part of a resource;
- Altering the characteristics of the surrounding environment that contribute to resource significance;
- Introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or
- Neglecting the resource to the extent that it is deteriorating or destroyed.

Impacts were assessed by identifying the types and locations of the Proposed Actions and determining the exact locations of cultural resources that could be affected.

4.9.2.1 Proposed Actions

No significant cultural resources, historic or prehistoric, are known to exist within the proposed project boundaries. This area of the base has been subjected to repeated disturbances and modifications. As a result, no impacts are anticipated to occur to known cultural resources from implementation of the Proposed Actions.

4.9.2.2 No-Action Alternative

Under the No-Action Alternative, there would be no changes to cultural resources.

4.10 SOCIOECONOMICS

4.10.1 Methodology

Impacts of population and expenditure are assessed by determining an action's direct effect on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly depending on the location of a proposed action; for example, the termination of an operation that employs 25 people in a major metropolitan area may be virtually unnoticed while the same action would have significant adverse impacts in a small community. A socioeconomic impact would be considered significant if implementation of an action would substantially shift population trends, or adversely affect regional spending patterns.

An impact to environmental justice would be considered significant if an action would result in a disproportionate adverse impact to minority or low-income populations in the project vicinity.

4.10.2 Impacts

Potential impacts to socioeconomic resources were analyzed by: (1) identifying and describing socioeconomic resources that could affect or be affected by the proposed projects, (2) examining the effects these actions may have on socioeconomic resources, (3) assessing the significance of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

4.10.2.1 Proposed Actions

Socioeconomic impacts from implementation of the Proposed Actions would be beneficial, but minor. Purchase of construction materials and salaries paid to construction workers would constitute a minor, temporary, beneficial impact on the local economy as would, contracts for construction equipment. Approximately 35 new jobs would be added to operate the new facilities: approximately 25 civilian contractors for the HC-130P FSF and 10 for the ACCF. Beneficial impacts from creation of these new jobs would result in negligible long-term impacts to socioeconomics from operation of the Proposed Actions. In a metropolitan area the size of Albuquerque, these impacts would be negligible.

Given the confinement of the Proposed Actions to on base sites, no off base communities would be affected. Although the Albuquerque area has relatively high percentages of minority and low-income populations, these communities would not be disproportionately affected. Therefore, possible impacts to populations identified in EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* would be negligible.

4.10.2.2 No-Action Alternative

Selection of the No-Action Alternative would not result in any changes to socioeconomics or to the minority or low-income populations in the Albuquerque area.

4.11 HAZARDOUS MATERIALS, HAZARDOUS WASTES, AND SOLID WASTES

4.11.1 Methodology

Numerous local, state, and federal laws regulate the storage, handling, disposal, and transportation of hazardous materials and wastes; the primary purpose of these laws is to protect public health and the environment. The significance of potential impacts associated with hazardous substances is based on ignitability, corrosivity, reactivity, and toxicity. Generally, impacts associated with hazardous materials and wastes would be considered significant if implementation of a proposed action would involve the storage, use, transportation, or disposal of hazardous substances that would substantially increase human health risks or environmental exposure. For example, if implementation of a proposed action would exacerbate conditions at an existing area of contamination associated with the Installation Restoration Plan, impacts would be considered significant.

A reduction in the quantity of hazardous substances used and/or generated would be a beneficial impact; a substantial increase in the quantity and/or toxicity of hazardous substances used or generated could be potentially significant. Significant impacts would result if a substantial increase in human health risks and/or environmental exposure were generated and such impacts could not be mitigated to acceptable local, state, and federal levels.

4.11.2 Impacts

Analysis of potential impacts to hazardous materials and wastes typically includes: (1) a comparative analysis of existing and proposed hazardous materials and waste materials and management practices to evaluate potential changes resulting from implementation of the Proposed Actions and alternatives, (2) assessment of the significance of potential impacts, and (3) provision of mitigation measures if potentially significant impacts are identified.

4.11.2.1 Proposed Actions

Construction of the new facilities would result in a short-term increase in the generation of non-hazardous and hazardous waste. Non-hazardous construction wastes (e.g., concrete and lumber) would be disposed of at the Kirtland AFB landfill, which has adequate capacity to accommodate construction-related waste. Additional non-hazardous waste (e.g., plastics and paper) generated by increased worker activity at the sites of the proposed projects would be collected in on-site dumpsters and transported to the City of Albuquerque's Cerro Colorado Landfill. Recyclable wastes would be separated for

pickup in accordance with the Kirtland AFB Qualified Recycling Program. With the exception of fuel, oils, and lubricants used by construction equipment, which would be handled and disposed of in accordance with all applicable regulations, no additional hazardous wastes would be generated by construction of the new facilities.

Operation of the proposed ACCF would generate the same types and similar amounts of hazardous waste as described in Table 3-12. However, there would be an increase in the number of paint filters to be disposed of compared to current operations, since painting would now occur in booths rather than outside. Filters would be changed based on air flow monitoring readings or by visual inspection. Sludge from the oil/water separator would be treated in the same manner as sludge produced from the current aircraft painting operations. An Initial Accumulation Point would have to be established within the proposed ACCF to dispose of hazardous waste.

4.11.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current conditions relating to hazardous materials and wastes, described in Table 3-12 and Appendix C, at Kirtland AFB.

SECTION 5
CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

Council on Environmental Quality (CEQ) regulations stipulate that the cumulative effects analysis in an Environmental Assessment (EA) should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 Code of Federal Regulations 1508.7). Recent CEQ guidance (CEQ 1997) in considering cumulative effects affirms this requirement, stating that the first steps in assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action and other actions. Cumulative effects analysis must also evaluate the nature of interactions among these actions.

In this EA, an effort has been made to identify all actions that are being considered and are in the planning phase at this time at Kirtland Air Force Base (AFB). To the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Actions in this EA, these actions are included in this cumulative analysis. This approach enables decision-makers to have the most complete information available so that they can evaluate the environmental consequences of a proposed action in relation to other projects that may affect the same region of influence.

5.1.1 Past Actions Relevant to the Proposed Actions and Alternative

Kirtland AFB is a large, active military installation that undergoes changes in mission and in training requirements. This process of change is consistent with the United States Defense policy that military installations must be ready to respond to constantly changing threats to American interests throughout the world. To assess these continuing changes, the 377th Air Base Wing at Kirtland AFB has prepared EAs of military construction actions every several years. Those EAs document the potential impacts of multiple proposed construction actions across the 52,000 acre base (listed in Appendix D).

5.1.2 Present Actions Relevant to the Proposed Actions and Alternative

Because of its size, number of tenant organizations (over 400) and amount of activity, Kirtland AFB requires occasional demolition of old facilities, new construction, facility improvements, and infrastructure upgrades. Currently, aging base housing is being demolished and replaced with new housing. This will continue over the next decade until all of the old housing has been removed.

5.1.3 Reasonably Foreseeable Actions that Interact with the Proposed Actions and Alternative

This category of actions includes US Air Force actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Actions. Information on these actions is included to determine whether these actions would, if implemented, incrementally affect environmental resources. These recently proposed or currently planned actions include:

- the ongoing relocation of Truman Gate;
- the proposed construction of a campus for pararescue/parajumper training by the 58th Special Operations Wing of Air Education and Training Command. Construction is proposed in an area currently occupied by aging military housing which would be demolished to make room for the campus;
- the proposed construction and operation of a car wash and drive-thru coffee kiosk by the Army and Air Force Exchange Services;
- the proposed beddown of a training wing of CV-22 Osprey tilt-rotor aircraft at Kirtland AFB;
- the construction and operation of Phase I of the Air Force Research Laboratory Kirtland Technology Park; and
- the proposed construction of a bulk fuel storage and offloading facility.

5.2 ANALYSIS OF CUMULATIVE EFFECTS

The following analysis examines how the impacts of the actions presented above might be affected by those resulting from the Proposed Actions and alternatives at Kirtland AFB, and whether such a relationship would result in potentially significant impacts not identified when the Proposed Actions and alternatives are considered individually.

Health and Safety. The Proposed Actions discussed in this document would have a negligible impact on human health and safety. When considered with the health and safety effects of the other future actions, they are not expected to have any cumulative negative impacts to health and safety on base.

Air Quality. The combined emissions from the Proposed Actions, when considered with potential emissions from other future actions at the base, are not expected to have any significant cumulative negative impacts to air quality.

Noise. The combined noise impacts from the Proposed Actions, when considered with potential impacts from other future actions at the base, are not expected to have any significant cumulative negative impacts to sensitive noise receptors.

Land Use and Visual Resources. No major impacts to land use or visual resources would occur from the Proposed Actions addressed in this document. The cumulative effects of the Proposed Actions, when considered with potential disturbances to land use

and visual resources from the other future actions, are not expected to have any significant cumulative negative impacts.

Geological Resources. No significant impacts to regional geological resources would occur from the Proposed Actions addressed in this document or other currently known future actions. The effects of the Proposed Actions, when considered with potential disturbances to geological resources from the other future actions, are not expected to have a significant cumulative negative impact on geological resources.

Water Resources. No significant impacts to water resources would occur from the Proposed Actions as addressed in this document. The effects of the Proposed Actions, when considered with potential disturbances to water resources from future actions, are not expected to have a significant cumulative negative impact on water resources.

Biological Resources. No significant impacts to biological resources would occur from the Proposed Actions addressed in this document. Burrowing owls would not be adversely impacted by the Proposed Actions as long as the guidelines provided in Section 4.8.2.1 are followed. Cumulative effects of the Proposed Actions, when considered with the potential disturbance to biological resources from other future actions, are not expected to have a significant impact on biological resources in the area.

Transportation and Utilities. No long-term negative impacts to transportation and utilities would occur from the Proposed Actions addressed in this document when considered with the other actions currently proposed for the base.

Cultural Resources. No impacts to cultural resources would occur from the Proposed Actions addressed in this document. The effects of the Proposed Actions, when considered with potential disturbances to cultural resources from the other future actions, are not expected to have significant cumulative negative impacts.

Socioeconomics. The overall impacts on socioeconomics from the Proposed Actions would be beneficial, but negligible. Minority and low-income populations off base would not be affected. Effects on socioeconomics from the Proposed Actions, when considered cumulatively with the other future actions, are not expected to significantly impact the area's socioeconomic environment.

Hazardous Materials and Solid Waste. Only minor changes to hazardous materials and waste management would occur from the Proposed Actions addressed in this document. Effects of the Proposed Actions, when considered with potential disturbances to hazardous materials and waste management from the other future actions, are not expected to have significant cumulative negative impacts.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources would have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and the petroleum product usage for construction equipment would constitute the consumption of non-renewable resources. These resources are plentiful in the Albuquerque area and the Proposed Actions would not be expected to result in significant requirements for those resources.

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SECTION 8
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USGS 1991a. Escabosa, NM Topographic Map. Scale 1:24,000. US Department of the Interior, Reston, Virginia.

USGS 1991b. Hubbell Spring, NM Topographic Map. Scale 1:24,000. US Department of the Interior, Reston, Virginia.

USGS 1991c. Mount Washington, NM Topographic Map. Scale 1:24,000. US Department of the Interior, Reston, Virginia.

APPENDIX A

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE

DEPARTMENT OF THE AIR FORCE
377th Civil Engineer Division (AFMC)

9 Nov 04

Cynthia Gooch
377 MSG/CEV
2050 Wyoming Blvd SE, Suite 126
Kirtland AFB NM 87117-5270

Governor Albert Alvidrez
Ysleta del Sur Pueblo
P.O. Box 17579 – Ysleta Station
El Paso, TX 79917

Dear Governor Alvidrez:

An Environmental Assessment (EA) is being prepared to evaluate the potential environmental impacts that could result from the proposed construction and operation of an HC-130P Flight Simulator Facility and an Aircraft Corrosion Control Facility at Kirtland Air Force Base in Albuquerque, New Mexico. Air Force Special Operations Command and the 58th Special Operations Wing, a unit of Air Education and Training Command, are the proponents of these actions.

In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs* (Section 1), we request that you review the attached Draft Environmental Assessment (attachment 1) and provide comments regarding any issues or concerns you have associated with the proposed actions. Offices listed in attachment 2 have received this package. If there are any additional agencies you feel should review and comment on these proposed actions, please include them in your distribution of these materials.

Please review this information and respond with comments within 30 days. If you have any questions, contact Dr. Evelyn Watkins at 246-4377. Please send your written comments to Dr. Watkins at 377 MSG/CEVQ, 2050 Wyoming Blvd. SE, Suite125, Kirtland AFB, New Mexico 87117-5270. If you prefer, you can transmit your comments electronically to her at NEPA@kirtland.af.mil. Thank you for your assistance.

Sincerely,

Cynthia Gooch, GS-12
Chief, Environmental Quality
Environmental Management Branch

Attachments:

1. Draft Environmental Assessment
2. Distribution List

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING DISTRIBUTION LIST
PROPOSED ACTIONS BY THE
AIR FORCE SPECIAL OPERATIONS COMMAND
AND THE
58TH SPECIAL OPERATIONS WING
KIRTLAND AIR FORCE BASE, NEW MEXICO

Ms. Jane Saginaw
Regional Administrator
USEPA, Region 6
First Interstate Bank Tower at Fountain Place
1444 Ross Avenue, 12th Floor, Suite 120
Dallas, TX 75202-2733

Mr. David Coss
New Mexico Environmental Resources Protection Division
New Mexico Environment Department
P.O. Box 26110
2044A Galisteo
Santa Fe, NM 87502

Governor Stuwart Paisano
Pueblo of Sandia
Box 6008
Bernalillo, NM 87004

Governor Alvino Lucero
Pueblo of Isleta
P.O. Box 1270
Isleta, NM 87022

Governor Albert Alvidrez
Ysleta del Sur Pueblo
P.O. Box 17579-Ysleta Station
El Paso, TX 79917

No Comments were received from the above Distribution List.

APPENDIX B

SPECIAL STATUS SPECIES IN BERNALILLO COUNTY

APPENDIX B
SPECIAL STATUS SPECIES IN BERNALILLO COUNTY

Common Name	Scientific Name	Status	Occurrence on Kirtland Air Force Base	Occurrence Within Withdrawal Area	Habitat	Season	Behavior
FISH							
Rio Grande silvery minnow	*Hybognathus amarus*	FE, SE, PCH	No	No	AQ	AY	Breeds
REPTILES							
Texas horned lizard	*Phrynosoma cornutum*	FSC	Potential	Potential	G, PJ	AY	Breeds
BIRDS							
Neotrophic cormorant	*Phalacrocorax brasilianus*	ST	No	No	R, AQ	SP, SM	Breeds
Bald eagle	*Haliaeetus leucocephalus*	FT, ST	Potential	Potential	G, PJ, P	SP, F	Transient
Northern goshawk	*Accipiter gentilis*	FSC	No	Potential	PJ, P	SP, SM, F	Transient, breeds in summer
Common black-hawk	*Buteogallus anthracinus anthracinus*	ST	No	No	R	SM	Breeds
Ferruginous hawk	*Buteo regalis*	FSC	Potential	Potential	G, PJ, P		
Whooping crane	*Grus americana*	FE, SE	No	No	G, R, AQ	W	Transient
Burrowing owl	*Athene cunicularia hypugaea*	FSC	Yes	Yes	G, PJ	SP, SM, F	Transient, nest in summer
Mexican spotted owl	*Strix occidentalis lucida*	FT, CH	Potential	Potential	PJ, P	AY	Transient, breeds in summer
White-eared hummingbird	*Hylocharis leucotis borealis*	ST	No	Potential	P	SM	Transient
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE, CH	No	No	R	SP, SM, F	Breeds
Loggerhead shrike	*Lanius ludovicianus*	FSC	Yes	Yes	G, PJ, R	AY	Transient, nests in summer, winter resident
American peregrine falcon	*Falco peregrinus anatum*	ST	Potential	Potential	G, PJ, P	SP,SM, F	Transient
Bell's vireo	*Vireo bellii*	ST	No	No	R	SM	Breeds
Gray vireo	*Vireo vicinior*	ST	Yes	Yes	G, PJ	SP, SM	Transient, breeds in summer

Common Name	Scientific Name	Status	Occurrence on Kirtland Air Force Base	Occurrence Within Withdrawal Area	Habitat	Season	Behavior
BIRDS (CONTINUED)							
Baird's sparrow	*Ammodramus bairdii*	ST	Potential	No	G, PJ	F	Transient
MAMMALS							
Black-footed ferret	*Mustela nigripes*	FE	No	No	G	AY	Breeds
Spotted bat	*Euderma maculatum*	ST	No	Potential	R, PJ, P	SM	Transient
Western small-footed myotis bat	*Myotis ciliolabrum melanorhinus*	FSC	No	Potential	R	SM	Breeds
Long-legged myotis bat	*Myotis volans interior*	FSC	No	Potential	PJ, P	SM	Breeds
Arizona black-tailed prairie dog	*Cynomys ludoficianus arizonicus*	C	No	No	G, PJ		
New Mexican jumping mouse	*Zapus hudsonius luteus*	ST	Potential	No	R	AY	Breeds
PLANTS							
Great Plains ladies'-tresses orchid	*Spiranthes magnicamporum*	SE	No	Potential	R, PJ	AY	Grows
Santa Fe Milkvetch	*Astragalus feensis*	S	Yes	No	G	AY	Grows

Sources: New Mexico Department of Game & Fish 2004, New Mexico Natural Heritage Program 2003, US Fish & Wildlife Service 2004
Notes:

FE = Federal Endangered	ST = State Threatened	G = Grassland	AY = All Year	S = State Sensitive
FT = Federal Threatened	FSC = Federal Species of Concern	PJ = piñon/Juniper	SP = Spring	
C = Federal Candidate	PCH = Proposed Critical Habitat	P = Ponderosa	SM = Summer	
SE = State Endangered	CH = Critical Habitat	R = Riparian	F = Fall	

Five special status species are known to inhabit Kirtland Air Force Base (AFB). The state threatened gray vireo is known to nest at the installation in the juniper woodland community. This vegetation community is located more than five miles east of the Proposed Actions. Three federal species of concern have been recorded to occur at Kirtland AFB: western burrowing owl, loggerhead shrike, and Texas horned lizard. Loggerhead shrikes are found in the grassland and shrublands of the base, but generally are not found in developed areas. The western burrowing owl inhabits abandoned prairie dog burrows which are found in vacant lots about the developed area and throughout the grasslands. Currently, a burrowing owl nesting site is present where the proposed Aircraft Corrosion Control Facility would be located (Finley 2004). The Texas horned lizard has been observed at the base, but this record may be the result of released or escaped individuals (Degenhardt et al. 1996). Santa Fe milkvetch, a state sensitive species, has been documented in the southwestern grasslands of the base, but does not occur in the developed area.

APPENDIX C

APPROVED HAZARDOUS MATERIALS FOR THE AIRCRAFT CORROSION CONTROL FACILITY

APPENDIX C
APPROVED HAZARDOUS MATERIALS FOR THE AIRCRAFT CORROSION CONTROL FACILITY

APPENDIX D

RECENTLY COMPLETED ENVIRONMENTAL ASSESSMENTS AT KIRTLAND AFB

APPENDIX D
RECENTLY COMPLETED ENVIRONMENTAL ASSSESSMENTS
AT
KIRTLAND AIR FORCE BASE

July 2004. Final Kirtland Air Force Base Perimeter Fencing EA.

November 2003. Final Kirtland Air Force Base Prairie Dog Management Program EA.

September 2003. Final Kirtland Air Force Base Arsenic Compliance System EA.

January 2003. Final 2002 Construction and Demolition Projects EA.

December 2002. Final Kirtland Air Force Base Southern Fence EA.

April 2002. Kirtland Air Force Base Fire, Crash and Rescue Facility EA.